DOCUMENT RESUME

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TITLE	Military Curriculum Materials for Vocational and Technical Education. Diet Therapy Specialist, 9-6.
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DESCRIPTORS	Behavioral Objectives; Course Descriptions; Curriculum Guides; *Dietetics; Dietitians; Equipment Maintenance; Equipment Utilization; *Food Service; *Health Facilities; *Hospitals; Learning Activities; Medical Services; *Nutrition; Occupational Home Economics; Postsecondary Education; Secondary Education; Service Occupations; Workbooks
IDENTIFIERS	*Diet Therapy; *Menu Planning; Military Curriculum Project

ABSTRACT

This plan of instruction, teaching guide, and student study guides/workbooks for a secondary-postsecondary level course for diet therapy specialists comprise one of a number of military-developed curriculum packages selected for adaptation to vocational instruction and curriculum development in a civilian setting. Purpose of the 114-hour course is to train students to calculate, modify, prepare, and service regular and therapeutic diets; operate and clean medical food service equipment; and serve ambulatory and bed patients. The course contains three blocks of instruction, but the first has been deleted. Block 2, Nutrition and Diet Therapy, contains two lessons totaling 88 hours of instruction: Normal Nutrition (32 hours) and Applied Clinical Nutrition (56 hours). Block 3, Menu Preparation and Service, contains two lessons covering 26 hours of instruction: Menu Production (12 hours) and Therapeutic Food Preparation and Patient Tray Service (14 hours). The plan of instruction details units of instruction, criterion objectives, and support materials needed. The teaching guide contains topic outlines for each class presentation along with behavioral objectives and notes on student evaluation. Contents of the study guides/workbooks include objectives, informative material, laboratory projects, questions and problems, reading assignments, and study assignments. Additional text materials and audiovisuals are suggested, but not provided. (YLB)

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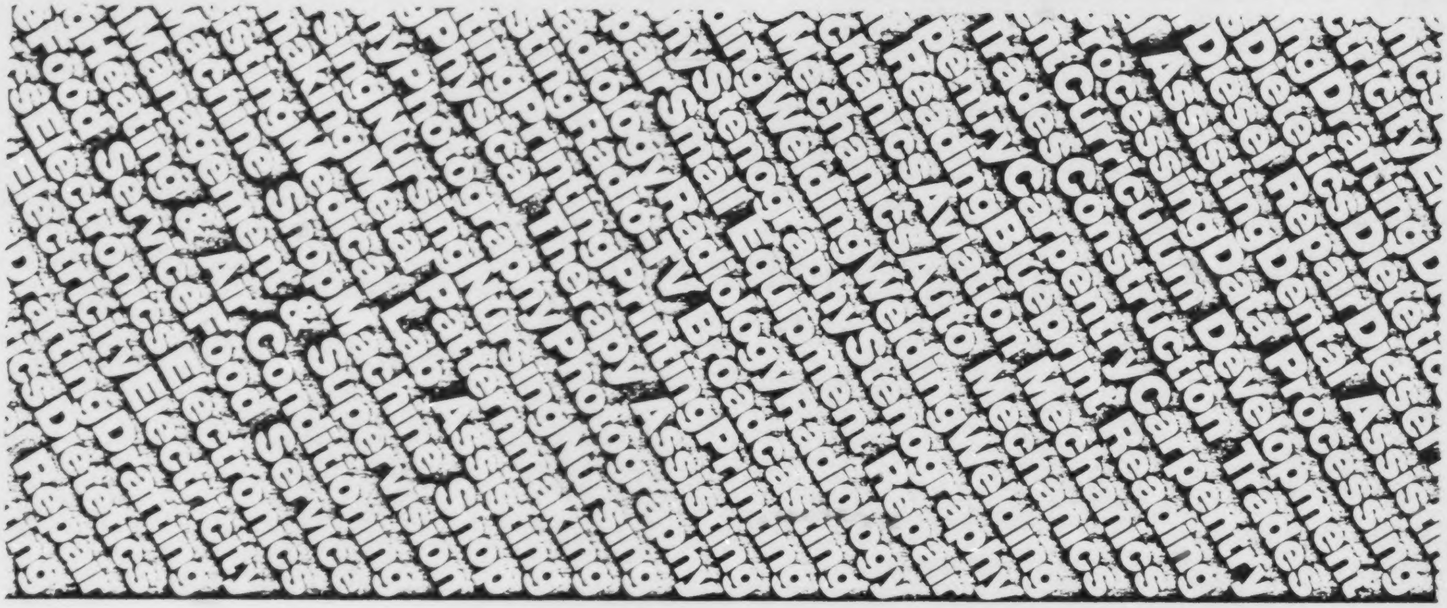

ED217129

Military Curriculum Materials for Vocational and Technical Education

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DIET THERAPY SPECIALIST

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THE NATIONAL CENTER
FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY
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MILITARY CURRICULUM MATERIALS

The military-developed curriculum materials in this course package were selected by the National Center for Research in Vocational Education Military Curriculum Project for dissemination to the six regional Curriculum Coordination Centers and other instructional materials agencies. The purpose of disseminating these courses was to make curriculum materials developed by the military more accessible to vocational educators in the civilian setting.

The course materials were acquired, evaluated by project staff and practitioners in the field, and prepared for dissemination. Materials which were specific to the military were deleted, copyrighted materials were either omitted or approval for their use was obtained. These course packages contain curriculum resource materials which can be adapted to support vocational instruction and curriculum development.

The National Center Mission Statement

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

FOR FURTHER INFORMATION ABOUT
Military Curriculum Materials
WRITE OR CALL

Program Information Office
The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road, Columbus, Ohio 43210
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Military Curriculum Materials for Vocational and Technical Education

Information and Field Services Division

The National Center for Research in Vocational Education

Military Curriculum Materials Dissemination Is . . .

an activity to increase the accessibility of military-developed curriculum materials to vocational and technical educators.

This project, funded by the U.S. Office of Education, includes the identification and acquisition of curriculum materials in print form from the Coast Guard, Air Force, Army, Marine Corps and Navy.

Access to military curriculum materials is provided through a "Joint Memorandum of Understanding" between the U.S. Office of Education and the Department of Defense.

The acquired materials are reviewed by staff and subject matter specialists, and courses deemed applicable to vocational and technical education are selected for dissemination.

The National Center for Research in Vocational Education is the U.S. Office of Education's designated representative to acquire the materials and conduct the project activities.

Project Staff:

Wesley E. Budke, Ph.D., Director
National Center Clearinghouse

Shirley A. Chase, Ph.D.
Project Director

What Materials Are Available?

One hundred twenty courses on microfiche (thirteen in paper form) and descriptions of each have been provided to the vocational Curriculum Coordination Centers and other instructional materials agencies for dissemination.

Course materials include programmed instruction, curriculum outlines, instructor guides, student workbooks and technical manuals.

The 120 courses represent the following sixteen vocational subject areas:

- Agriculture
- Aviation
- Building & Construction Trades
- Clerical Occupations
- Communications
- Drafting
- Electronics
- Engine Mechanics
- Food Service
- Health
- Heating & Air Conditioning
- Machine Shop
- Management & Supervision
- Meteorology & Navigation
- Photography
- Public Service

The number of courses and the subject areas represented will expand as additional materials with application to vocational and technical education are identified and selected for dissemination.

How Can These Materials Be Obtained?

Contact the Curriculum Coordination Center in your region for information on obtaining materials (e.g., availability and cost). They will respond to your request directly or refer you to an instructional materials agency closer to you.

CURRICULUM COORDINATION CENTERS

EAST CENTRAL
Rebecca S. Douglass
Director
100 North First Street
Springfield, IL 62777
217/782-0759

MIDWEST
Robert Patton
Director
1515 West Sixth Ave.
Stillwater, OK 74704
405/377-2000

NORTHEAST
Joseph F. Kelly, Ph.D.
Director
225 West State Street
Trenton, NJ 08625
609/292-6562

NORTHWEST
William Daniels
Director
Building 17
Airdustrial Park
Olympia, WA 98504
206/753-0879

SOUTHEAST
James F. Shill, Ph.D.
Director
Mississippi State University
Drawer DX
Mississippi State, MS 39762
601/325-2510

WESTERN
Lawrence F. H. Zane, Ph.D.
Director
1776 University Ave.
Honolulu, HI 96822
808/948-7834

DIET THERAPY SPECIALIST

Classroom Course

Developed by:
United States Air Force

Development and Review Dates
April 11, 1975

D.O.T. No.:
077.128

Occupational Area:
Food Service

Target Audiences:
Grades 11-adult

Print Pages:
550

Availability:
Military Curriculum Project, The Center for Vocational Education, 1960 Kenny Rd., Columbus, OH 43210

Contents:	Type of Materials:						Instructional Design:				Type of Instruction:	
	Lesson Plans:	Programmed Text:	Student Workbook:	Handouts:	Text Materials:	Audio-Visuals:	Performance Objectives:	Tests:	Review Exercises:	Additional Materials Required:	Group Instruction:	Individualized:
			No. of pages									
Block II – *Nutrition and Diet Therapy*												
Normal Nutrition	●		151		★	★	●		●	★	●	
Applied Clinical Nutrition	●		129		★	★	●		●	★	●	
Block III – *Menu Production and Service*												
Menu Production	●		56		★	★	●		●	★	●	
Therapeutic Food Preparation and Patient Tray Service	●		21		★	★	●		●	★	●	

★ Materials are recommended but not provided.

Course Description

This course trains students to calculate, modify, prepare and service regular and therapeutic diets; operate and clean medical food service equipment; use certain methods to serve food to ambulatory and bed patients; procure, store, and issue dietetic foods and supplies; and perform accounting procedures and medical food service administration. The course contains three blocks of instruction, but the first block covering Medical Services Administration was deleted. The remaining two blocks cover 114 hours of instruction.

Block II — *Nutrition and Diet Therapy* contains two lessons totaling 88 hours of instruction. Lesson topics and respective hours follow:

Normal Nutrition (32 hours)
Applied Clinical Nutrition (56 hours)

Block III — *Menu Preparation and Service* contains two lessons covering 26 hours of instruction.

Menu Production (12 hours)
Therapeutic Food Preparation and Patient Tray Service (14 hours)

This course contains both teacher and student materials. Printed instructor materials include a course chart; a plan of instruction detailing units of instruction, criterion objectives, the duration of the lessons, and support materials needed; lesson plans containing an outline of instruction; and a Specialty Training Standard for use in student performance evaluation. Student materials consist of study guide/workbooks for each sub-unit of each lesson.

Several Air Force manuals and commercial publications are referenced as additional text materials but these are not provided. Audiovisuals suggested for use with this course include one chart, two cassette sets and eight films.

DIET THERAPY SPECIALIST

Table of Contents

Course Description Page 1

Plan of Instruction Page 3

Block II - Nutrition and Diet Therapy

- Lesson Plans Page 18
- Normal Nutrition (Metric System) Part I - Study Guide and Workbook Page 150
- Normal Nutrition (Terminology and Abbreviations - Study Guide and Workbook Page 173
- Normal Nutrition (Basic Nutrition, Energy Metabolism, Basic Four Food Groups) - Study Guide and Workbook Page 213
- Normal Nutrition (Food Composition) Page 223
- Normal Nutrition (RDA) - Study Guide and Workbook Page 247
- Normal Nutrition (Digestion and Absorption) - Study Guide and Workbook Page 258
- Applied Clinical Nutrition (Inflight Feeding) - Study Guide and Workbook Page 271
- Applied Clinical Nutrition (Therapeutic Nutrition) - Study Guide and Workbook Page 293
- Applied Clinical Nutrition (Diet Modifications) - Study Guide and Workbook Page 306
- Applied Clinical Nutrition (Writing Therapeutic Diets) - Study Guide and Workbook Page 424
- Applied Clinical Nutrition (Professional and Patient Relationships) - Study Guide and Workbook Page 441

Block III - Menu Production and Service

- Lesson Plans Page 468
- Menu Production (Menu Interpretation) - Study Guide and Workbook Page 504
- Menu Production (Standardized Recipes) - Study Guide and Workbook Page 523

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DIET THERAPY SPECIALIST

Table of Contents (Cont.)

Patient Tray Service - Study Guide and Workbook Page 560

Therapeutic Food Preparation - Study Guide Page 577

PLAN OF INSTRUCTION

(Technical Training)

DIET THERAPY SPECIALIST

AIR TRAINING COMMAND

SHEPPARD TECHNICAL TRAINING CENTER

11 April 1975 - Effective 21 April 1975 with Class 750421

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LIST OF CURRENT PAGES

This POI consists of 25 current pages issued as follows:

Page No.	Issue
Title	Original
A	Original
i	Original
1 thru 17	Original
Annex (5 pages)	Original

DISTRIBUTION: AFMPC/SGE-2; ATC/SGHE-2; AUL-1; CCAF/AY-2; SGPM/200-1; MSOR-1; MSOXC-11; MSDM-55.

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COURSE CHART

NUMBER 3ABR62231-2	PDS CODE S3Z	DATE 11 December 1975

COURSE TITLE
Diet Therapy Specialist

ATC OPR AND APPROVAL DATE SGHE, 11 July 1974	CENTER OPR Sheppard/SHCS/MSOX	SUPERSEDES COURSE CHART 3ABR62231-2, 10 March 1975

DEPARTMENT OPR Department of Biomedical Sciences	APPLICABLE TRAINING STANDARD STS 622X1, 6 December 1974
LOCATION OF TRAINING Sheppard AFB, Texas	COURSE SECURITY CLASSIFICATION UNCLASSIFIED
INSTRUCTIONAL DESIGN Group/Lock Step	TARGET READING GRADE LEVEL FOR PREPARATION OF TRAINING LITERATURE 11

LENGTH OF TRAINING
(5 Weeks, 2 Days)

	Hours	
Technical Training		202
Classroom/Laboratory (C/L)	162	
Complementary Technical Training (CTT)	40	
Related Training		14
Local Conditions Course (Course II) (AFR 50-24)	2	
Commander's Call/Briefing	2	
End of Course Appointments; Predeparture Safety Briefing (ATCR 127-1)	10	
TOTAL		216

REMARKS

Effective date: 23 January 1976 with class 760123. All previously enrolled classes will continue to be governed by Course Chart dated 10 March 1975.
Applicable safety is integrated throughout the course.

TABLE I - MAJOR ITEMS OF EQUIPMENT

Patient Food Cart
Dietetic Scales
Food Blenders
Patient Scale
Misc Cooking Utensils
Demonstration Table

ATC FORM DEC 74 449 REPLACES PREVIOUS EDITIONS AND ATC FORM 449 B, NOV 72

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Note: Block I has been omitted because of military specific materials.

PLAN OF INSTRUCTION	COURSE TITLE Diet Therapy Specialist

BLOCK TITLE

Nutrition and Diet Therapy

UNITS OF INSTRUCTION AND CRITERION OBJECTIVES 1	DURATION (HOURS) 2
1. Normal Nutrition	44 (32/12)
a. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.	(4)
b. Define commonly used medical and dietetic terms and abbreviations.	(6)
c. Describe basic nutrition.	(2)
d. Describe energy metabolism.	(2)
e. Identify the individual nutrients of which foods are composed and their functions in the body.	(11)
f. Given a daily menu, appropriate texts, pertinent data and a listing of Recommended Dietary Allowances, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy percent of all requested data must be accomplished correctly on checklist 3ABR62231-2-II-1f.	(3)
g. Describe the processes of digestion and absorption.	(4)

SUPPORT MATERIALS AND GUIDANCE

3

Column 1 Reference	STS Reference
1a	16f
1b	15a, 15b
1c	16a
1d	16b
1e	16c, 16d
1f	16e, 17e
1g	16g

Instructional Materials

SW 3ABR62231-2-II-1a, Normal Nutrition (Metric System) Part I

SW 3ABR62231-2-II-1a, Normal Nutrition (Metric System, Weights and Measures) Part II

SW 3ABR62231-2-II-1b, Normal Nutrition (Terminology & Abbreviations)

SW 3ABR62231-2-II-1c, Normal Nutrition (Basic Nutrition, Energy Metabolism, Basic Four Food Groups)

SW 3ABR62231-2-II-1d, Normal Nutrition (Food Composition)

SW 3ABR62231-2-II-1e, Normal Nutrition (RDA)

SW 3ABR62231-2-II-1f, Normal Nutrition (Digestion and Absorption)

Textbook, Normal & Therapeutic Nutrition, 14th edition, by Corrine H. Robinson

Textbook, Introductory Nutrition, 2nd edition, by Helen Guthrie

AFM 160-8, Applied Clinical Nutrition

Medical Dictionary

Textbook, Bowes & Church, Food Values of Portion Commonly Used

USDA Handbook #8, Composition of Foods

Audio Visual Aids

Transparencies, Metric System Set

Transparencies, Basic Nutrition Set

Transparencies, Food Composition Set

Transparencies, RDA Set

Transparencies, Digestion and Absorption Set

Transparencies, Terminology and Abbreviation Set

Wax and Paper Food Models

PLAN OF INSTRUCTION NO. 3ABR62231-2	DATE 11 APR 1975	BLOCK NO. II	PAGE NO. 7

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
		Audio Visual Aids (Cont'd) Anatomical Torso Chart, Metric 8 mm Cassette, 5-51a, A Balanced Diet 8 mm Cassette, 5-51e, Food Guides Films: TF 8227F, Human Body - Nutrition & Metabolism (15 min) FLC 6-115, Food & Nutrition (10 min) The Digestive System (Title Only) (17 min) Training Equipment Measuring Cup (2) Graduate Cylinder (12) Gram Scales (2) Three 8-oz Squat Cups (2) Selected foods for weighing and measuring (12) Measuring Spoons (2) Teaspoons (1) Ladles (12) Scoops (12) Training Methods Lecture/Discussion (23 hrs) Demonstration (2.5 hrs) Performance (6.5 hrs) Outside Assignments (12 hrs) Instructional Environment/Design Classroom (25.5 hrs) Laboratory (6.5 hrs) Home Study (12 hrs) Group/Lock Step Instructional Guidance For objective 1a, the instructor will weigh food items to be used in the laboratory and record weights of each item. Following demonstration on proper use of gram scales, students are divided into groups of two for laboratory. Three instructors are required for 3 hours of Demonstration/

PLAN OF INSTRUCTION NO. 3ABR62231-2 | DATE 11 APR 1975 | BLOCK NO. II | PAGE NO. 8

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE	
		Instructional Guidance (Continued) Performance, each supervising two groups of two students. Following laboratory exercise, students will properly clean the equipment they used and return it to the storage cabinet. Assign programmed text as assignment to be completed by beginning of class, Day 8. For objective 1b, give one copy of the Medical Dictionary which is to be returned before the end of the class day. Stress importance of using accepted terms and abbreviations instead of making up their own. For objective 1d, show film Nutrition and Metabolism. For objective 1e, assign students specific minerals and vitamins on which to prepare a 5-10 minute briefing to be presented to the class on Days 10 and 11, including functions in the body, daily requirements, deficiency diseases, and food sources. The instructor presents information on other nutrients. For objective 1f, have students use Table A-1, Nutritive Values of the Edible Parts of Foods, in Robinson text, to accomplish project on checklist 3ABR62231-2-II-1f. RDA project in SW must be accomplished correctly prior to administering checklist 3ABR62231-2-II-1f. Two instructors are required for three hours to supervise students as they complete the project and checklist. Circulate one copy each of Handbook #8 and Bowes and Church to have students become familiar with various food composition tables. For objective 1g, instructor will use anatomical torso.	
2. Measurement Test and Test Critique	2		
3. Applied Clinical Nutrition	72 (56/16)	Column 1 Reference	STS Reference
a. Explain Cooked Therapeutic Inflight Meals (CTIM) and preparation of therapeutic inflight meals.	(2)	3a	17c(19)
b. Identify the objectives of therapeutic diet regimens.	(2)	3b	17a
c. Identify the therapeutic modifications of the regular diet and indications for their use.	(2)	3c	14a(1), 14a(2), 14a(3), 14b, 17b, 17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20)
		3d	17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20) 17e

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)
d. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items on checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.	(6)
e. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70% accuracy. Record on checklist 3ABR62231-II-3e.	(6)
f. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the trays must be correctly identified on checklist 3ABR62231-2-II-3f, using AFM 160-8.	(6)
g. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.	(5)
h. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within + or - 1%. Record data on checklist 3ABR62231-2-II-3h.	(1)
i. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:	(10)

3 SUPPORT MATERIALS AND GUIDANCE

Column 1 Reference	STS Reference (Continued)
3e	17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20), 17e
3f	16c, 16d, 17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20)
3g	17d, 18h
3h	17e
3i	13b(2)(e), 17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20), 17e
3j	17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20), 17e
3k	18a, 18d
3l	18b
3m	18f
3n	13a(7), 18h
3o	18i, 18j
3p	13a(6)
3q	18g, 18h, 18i, 18j

Instructional Materials

SW 3ABR62231-2-II-2a, Applied Clinical Nutrition (Inflight Feeding)
SW 3ABR62231-2-II-2b, Applied Clinical Nutrition (Therapeutic Nutrition)
SW 3ABR62231-2-II-2c, Applied Clinical Nutrition (Diet Modifications)
SW 3ABR62231-2-II-2d, Applied Clinical Nutrition (Writing Therapeutic Diets)

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
(1) Total number of meals required for one day (2) All menu items allowed on the diet (3) Food selections made from extended menu whenever possible (4) Correct format (5) Correct quantities of menu items allowed (6) Correct prefixes for diet identification (whenever necessary) (7) Correct meal pattern used as basis for menu		Instructional Materials (Cont'd) SW 3ABR62231-2-II-2e, Applied Clinical Nutrition (Professional & Patient Relationships) AFM 160-8, Applied Clinical Nutrition Textbook, Normal & Therapeutic Nutrition, 14th edition, by Corrine H. Robinson AF Form 1738, Therapeutic Menu MACM 164-1, Cooked Therapeutic Inflight Meals National Institute of Health booklets on hyperlipoproteinemia diets (five booklets per set) Audio Visual Aids Transparencies, Therapeutic Nutrition Set Transparencies, Diet Modifications Set Transparencies, Writing Therapeutic Diets Set Transparencies, Professional & Patient Relationships Set Food Models, Wax and Paper Film: MN-10220C, Nursing Care: The Diabetic Patient (28 min) Training Equipment Hot/Cold Food Cart (12) Demonstration Table (12) Patient Trays (2) Tray Appointments (2) Sauce Pan (12) Food Blender (2) Food Grinder (12) Measuring Cups (2) Hot Plate (12) Graduated Cylinder (12) Cutting Board (2) French Knife (2) Cheese Cloth (12) Spoon (1) Food for Laboratory (12) Selected Packaged Foods (12)
j. Using the appropriate exchange lists in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j for each menu.	(6)	
k. Describe principles of medical ethics and conduct to follow when dealing with professional staff, patients, visitors, and the public.	(1)	
l. Explain the psychology of serving patients.	(1)	
m. Explain the purposes and procedures for conducting ward rounds and visits.	(1)	

PLAN OF INSTRUCTION (Continued)

6

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)
n. Discuss procedures for assisting patients in selecting food items for their diets.	(1)
o. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.	(1)
p. Describe procedures for assisting disabled ambulatory patients through the cafeteria line.	(1)
q. Using another student as a patient, roleplay a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741 provided on checklist 3ABR62231-2-II-3q: (1) Height and Weight (2) Sex, Age (3) Where and when the patient eats (4) Food likes and dislikes (5) Previous diet orders (6) Occupation (7) Typical meal patterns (8) Who prepares the food	(4)

3 SUPPORT MATERIALS AND GUIDANCE

Training Methods
Lecture/Discussion (17 hrs)
Demonstration (1 hr)
Performance (38 hrs)
Outside Assignments (16 hrs)

Instructional Environment/Design
Classroom (18 hrs)
Laboratory (38 hrs)
Home Study (16 hrs)
Group/Lock Step

Instructional Guidance
For objective 1a, distribute a copy of MACM 164-1, Cooked Therapeutic Inflight Meals, to each student. Have students follow instructions in the manual as you discuss filling out MAC Form 450. For objectives 3b and 3c, instructor will cook chicken prior to the class to have it available for the lab. Stress the relationships of the regular diet pattern to therapeutic diet patterns. For objective 3d, assign specific diets to each student on the day prior to his briefing to allow time for preparation. Explain points students are to cover and those on which they will be graded during their briefing. Instructor will explain the exchange lists and their use in calculating diabetic and calorie restricted diets prior to criterion checks for objectives 3f, 3g and 3h. Following completion of objective 3h, a measurement test will be given. For objective 3i, instructor will explain "extended" menus and their use for writing therapeutic diets. This project is in study guide/workbook. On Day 19, two instructors are needed for 6 hours to supervise students menu writing for assigned therapeutic diets. For objective 3k, during discussion of medical ethics and code of conduct for medical food service personnel, instructor will explain the Code of Ethics for Dietitians. To accomplish objective 3q, Day 22, three instructors are needed to demonstrate the technique for interviewing patients. The class is then divided into three groups of four students per group. Each member of the group role-plays the part of a patient and that of an instructor in doing a patient interview, recording the results on the AF Form 1741 printed on checklist 3ABR62231-2-II-3q.

PLAN OF INSTRUCTION (Continued)

UNITS OF INSTRUCTION AND CRITERION OBJECTIVES 1	DURATION (HOURS) 2	SUPPORT MATERIALS AND GUIDANCE 3
4. Related Training (identified in course chart)	2	
5. Measurement Test and Test Critique	4	Instructional Guidance Two hours of measurement test and test critique are administered following objective 3h. The remaining two hours of measurement test and test critique are administered following the completion of unit 3.

PLAN OF INSTRUCTION NO. 3ABR62231-2	DATE 11 APR 1975	BLOCK NO. II	PAGE NO. 13

PLAN OF INSTRUCTION	COURSE TITLE Diet Therapy Specialist
BLOCK TITLE Menu Production and Service	

UNITS OF INSTRUCTION AND CRITERION OBJECTIVES 1	DURATION (HOURS) 2
1. Menu Production	14 (12/2)
a. Describe factors to be considered when writing selective and cycle menus.	(1)
b. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on checklist 3ABR62231-2-III-1b as possible.	(3)
(1) Soft/Bland	
(2) Calorie Restricted/Diabetic	
(3) Full Liquid	
(4) Sodium Restricted	
(5) Fat Restricted	
c. Discuss menu costing procedures.	(1)
d. Explain procedures for making menu item substitutions.	(1)
e. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and the total yield of the recipe with a deviation from the correct amounts of no more than 1%.	(6)

SUPPORT MATERIALS AND GUIDANCE
3

Column 1 Reference	STS Reference
1a	9a(1), 9a(2)
1b	9a(3), 17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20)
1c	9b
1d	9c
1e	9d, 9e(1)

Instructional Materials
SW 3ABR62231-1-III-1a, Menu Production (Menu Interpretation)
SW 3ABR62231-1-III-1b, Menu Production (Standardized Recipes)
AFM 160-8, Applied Clinical Nutrition
AFM 146-12, Recipes

Audio Visual Aids
Transparencies, Menu Interpretation Set
Transparencies, Standardized Recipes Set
Film, FLC 21-0057, Using Standardized Recipes (11 min)

Training Methods
Lecture/Discussion (4 hrs)
Demonstration (1 hr)
Performance (7 hrs)
Outside Assignments (2 hrs)

Instructional Environment/Design
Classroom (5 hrs)
Laboratory (7 hrs)
Home Study (2 hrs)
Group/Lock Step

PLAN OF INSTRUCTION (Continued)

<table>
<tr><th>1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES</th><th>2 DURATION (HOURS)</th><th>3 SUPPORT MATERIALS AND GUIDANCE</th></tr>
<tr><td></td><td></td><td>Instructional Guidance
For objective 1b, instructor will explain procedures for extending a regular menu and stress the importance of using as many items from the regular menu as possible. The project for objective 1e is in SW and will be administered as outlined in the lesson plans under the supervision of an instructor. While students are working with the recipe file, AFM 146-12, point out the file of therapeutic recipes, AFM 160-18, as these are filed in the same metal file drawer. Point out that diet therapy personnel frequently use recipes from this file as they prepare therapeutic menus for patients.</td></tr>
<tr><td>2. Therapeutic Food Preparation and Patient Tray Service

a. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor.

(1) Prepare and cook a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the students' hospital experience observing the items on checklist 3ABR62231-2-III-2a.

(2) Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions.

b. Using the USAF Regional Hospital, Sheppard, medical food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on checklist 3ABR62231-2-III-2b.

(1) Assemble and operate equipment for patient tray service area IAW standard local procedures.</td><td>14

(3)

(3)

(.5)</td><td>
<table>
<tr><th>Column 1 Reference</th><th>STS Reference</th></tr>
<tr><td>2a(1)</td><td>7c, 13b(2)(b), 14a(1), 14a(2), 14a(3), 14b, 14d, 14e, 17c(1), 17c(2), 17c(3), 17c(4), 17c(5), 17c(6), 17c(7), 17c(8), 17c(9), 17c(10), 17c(11), 17c(12), 17c(13), 17c(14), 17c(15), 17c(16), 17c(17), 17c(18), 17c(19), 17c(20)</td></tr>
<tr><td>2a(2)</td><td>7c, 14c</td></tr>
<tr><td>2b(1)</td><td>7c, 13b(2)(c)</td></tr>
<tr><td>2b(2)</td><td>13b(2)(d), 17e</td></tr>
<tr><td>2b(3)</td><td>13b(2)(a), 13b(2)(f)</td></tr>
<tr><td>2b(4)</td><td>13b(2)(g)(1), 13b(2)(g)(2), 13b(2)(g)(3) 13b(2)(g)(4)</td></tr>
<tr><td>2b(5)</td><td>13b(2)(a), 13b(2)(h)</td></tr>
<tr><td>2b(6)</td><td>13b(3)(a)</td></tr>
<tr><td>2b(7)</td><td>13b(3)(b)</td></tr>
<tr><td>2b(8)</td><td>13b(2)(a), 13b(3)(c)</td></tr>
<tr><td>2b(9)</td><td>7c, 13b(3)(d)</td></tr>
<tr><td>2b(10)</td><td>13b(1)(b), 18a</td></tr>
<tr><td>2b(11)</td><td>18b, 18d</td></tr>
<tr><td>2b(12)</td><td>4c</td></tr>
<tr><td>2b(13)</td><td>4d</td></tr>
</table>
Instructional Materials
SG 3ABR62231-2-III-2a, Therapeutic Food Preparation
SW 3ABR62231-2-III-2b, Patient Tray Service</td></tr>
</table>

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)
(2) Heat or chill dishes and serving equipment IAW standard local procedures.	(.5)
(3) Correctly set up patient trays IAW tray identification slips.	(1)
(4) Check patient trays for accuracy IAW tray identification slips.	(1)
(5) Load patient trays on food carts IAW standard loading procedures.	(1.5)
(6) Deliver patient food carts to wards IAW standard local procedures.	(1)
(7) Complete final tray assembly on wards IAW standard local procedures.	(.5)
(8) Pick up and return patient food carts to kitchen IAW standard local procedures.	(.5)
(9) Unload and clean patient food carts and equipment IAW standard local procedures.	(.5)
(10) Promote good professional relations with medical personnel, patients, visitors, and the public.	(.3)
(11) Perform duties with a high standard of professional conduct.	(.3)
(12) Observe security precautions involved in communications.	(.2)
(13) Observe security precautions involving the safeguarding of equipment, supplies, and money within the Medical Food Service Department.	(.2)

3 SUPPORT MATERIALS AND GUIDANCE

Training Equipment

Equipment in the USAF Regional Hospital, Sheppard, Medical Food Service Department

Training Methods

Lecture/Discussion (1.8 hrs)
Demonstration (.2 hrs)
Performance (12 hrs)

Instructional Environment/Design

Classroom - Medical Food Service Facility, USAF Regional Hospital, Sheppard (2 hrs)
Laboratory - Medical Food Service Facility, USAF Regional Hospital, Sheppard (12 hrs)
Group/Lock Step

Instructional Guidance

For objective 2a, one instructor is needed for each four students. Instructors are to closely supervise students. Stress safety as students are introduced to each new type of equipment. Direct students' attention to the many forms used in the Medical Food Service facility and the routes these forms follow from procurement to service of food. Record on checklist 3ABR62231-2-III-2a the therapeutic foods each student prepares. For objective 2b, one instructor is needed for each four students. Demonstrate the operation and cleaning of all equipment needed for patient tray service. Emphasize safety precautions. Evaluate student performance by use of checklist 3ABR62231-2-III-2b. These two objectives are not necessarily taught in order. Students are divided in groups of four, with one instructor per group. Each group may be working on a different objective or on different parts of the same objective at different times. This is required to evenly distribute students throughout the work area in the hospital kitchen. Different portions of these two objectives must be accomplished at the time of day when they would logically be performed and cannot necessarily be performed in sequence.

PLAN OF INSTRUCTION NO. 3ABR62231-2	DATE 11 APR 1975	BLOCK NO. III	PAGE NO. 16

PLAN OF INSTRUCTION (Continued)

1 UNITS OF INSTRUCTION AND CRITERION OBJECTIVES	2 DURATION (HOURS)	3 SUPPORT MATERIALS AND GUIDANCE
3. Related Training (Identified in Course Chart)	10	
4. Measurement Test and Test Critique	2	
5. Course Critique and Graduation	2	

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE MSDB Wilson 21 Jan 75	INSTRUCTOR
COURSE NUMBER 3ABR62231-2	COURSE TITLE Diet Therapy Specialist
BLOCK NUMBER II	BLOCK TITLE Nutrition & Diet Therapy

LESSON TITLE
Normal Nutrition

LESSON DURATION

CLASSROOM /Laboratory	Complimentary	TOTAL
32 hrs	12 hrs	44 hrs

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
7,8,9	8Oct74	1a-g

STS/CTS REFERENCE

NUMBER	DATE
622X1	4 December 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Measuring Cup (2) Graduate Cylinder (12) Gram Scales (2) Three 8 oz Squat Cups (2) Selected foods for weighing and measuring (12) (See back)			SW 3ABR62231-II-1a, Normal Nutrition (Metric System) Part I SW 3ABR62231-2-II-1a, Normal Nutrition (Metric Sys, Weights & Measures) Part II) (See back)

CRITERION OBJECTIVES AND TEACHING STEPS

1a. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.

1b. Define commonly used medical and dietetic terms and abbreviations.

1c. Describe basic nutrition.

1d. Describe energy metabolism.

1e. Identify the individual nutrients of which foods are composed and their functions in the body.

1f. Given a daily menu, appropriate texts, pertinent data and a listing of Recommended Dietary Allowances, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy percent of all requested data must be accomplished correctly on checklist 3ABR62231-2-II-1f.

1g. Describe the process of digestion and absorption.

(Teaching steps listed in Part II)

ATC FORM AUG 72 770

☆ GPO: 1972 779-398/23

Graphic Aids Cont'd

SW 3ABR62231-2-II-1b, Normal Nutrition (Terminology & Abbreviations.
SW 3ABR62231-2-II-1c, Normal Nutrition (Basic Nutrition, Energy Metabolism, Basic Four Food Groups)
SW 3ABR62231-2-II-1d, Normal Nutrition (Food Composition)
SW 3ABR62231-2-II-1e, Normal Nutrition (RDA)
SW 3ABR62231-2-II-1f, Normal Nutrition (Digestion and Absorption)
Textbook, Normal & Therapeutic Nutrition, 14th edition, by Corrine H. Robinson
Textbook, Introductory Nutrition, 2nd edition, by Helen Guthrie
AFM 160-8, Applied Clinical Nutrition
Medical Dictionary
Textbook, Bowes & Church, Food Values of Portion Commonly Used
USDA Handbook #8, Composition of Foods
Transparencies, Metric System Set
Transparencies, Basic Nutrition Set
Transparencies, Food Composition Set
Transparencies, RDA Set
Transparencies, Digestion and Absorption Set
Transparencies, Terminology and Abbreviation Set
Wax and Paper Food Models
Anatomical Torso
Chart, Metric
8mm Cassette, 5-51a, A Balanced Diet
8mm Cassette, 5-51e Food Guides
Films: TF 8227F, Nutrition & Metabolism (15 min)
FLC 6-115, Food & Nutrition (10 min)
TF 8227C, Digestive System (14 min)

Equip cont'd
Ladles (12)
Scoops (12)
Teaspoons (1)

PART II TEACHING GUIDE

INTRODUCTION (15 Min)

ATTENTION: During the following lessons you will be introduced to the metric system of weights and measures. Many manufacturing companies are already using metrics in some way. Drugs, electricity, and weapons are expressed in metric terms. Measurements in food service will have to be converted to the metric system in the near future if legislature approves conversion of our present system of measure to the metric system.

Terminology and abbreviations will introduce you to the terms and abbreviations used in the study of nutrition. Understanding medical terminology is a must in medical food service. You will see medical terminology and abbreviations used on diet prescriptions and will use them in your daily conversations with other medical personnel.

Basic nutrition will also be discussed during this lesson. Covered in this area is the Basic Four Food Groups and how it is used in planning and evaluating diets. Energy metabolism will also be discussed and will deal with determining total caloric and nutrient requirements of the body.

You will receive diet orders that require adjustments to one or more of the nutrients, therefore, you must know the food sources for these nutrients and their function in the body. This will be covered also.

After studying the composition of foods we will analyze a diet by using tables of food values to determine whether or not an individual is consuming enough nutrients to keep his body in optimum health.

Digestion and absorption will be the final part in this unit of instruction. You have seen how an individual requires energy to carry on his every day activities. Once you understand the chemical and physical changes that foods must undergo and how these changed foods are used by the body, then you can appreciate the importance of food as fuel for man's existence.

MOTIVATION: As you progress through the different areas of Normal Nutrition you will become more aware of the increasing importance proper nutrition plays in good health. Knowledge in the area of good nutrition will not only help in your job but in your personal life as well. Information gained from these lessons will be important in better understanding the role that food plays in your everyday life. Also what will be learned here will be applied on the job every day as you meet with patients and through discussions with the medical staff. Then .... once we understand basic nutrition we can progress to learn about diet therapy.

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OVERVIEW: Objectives covered in this unit of instruction include:

Transp 1a-1c

1. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.

2. Explain the decimal basis of the metric system.

3. Define: Metric System, Meter, Liter, Gram

4. Compare common household measurements with the measurements of the metric system.'

5. Differentiate between metric weight and metric volume.

6. Explain the procedure for converting common household measurements into metric equivalents and vice versa.

7. Explain the proper use of measuring instruments.

8. Explain the parts, operation, use and care of the dietetic gram scale.

9. Use proper technique to weigh foodstuffs on a gram scale.

Transp 2a

10. Discuss the purpose of having medical and dietetic terminology.

11. Discuss the sources for finding the meaning of unfamiliar terminology.

12. Explain why abbreviations are developed.

13. Define commonly used medical and dietetic terms and abbreviations.

14. Complete a programmed text on the use of terminology and abbreviations.

Transp 3a-3b

15. Describe basic nutrition.

16. Define diet

17. Identify the basic four food groups and the amount of each to be included in the daily diet.

18. Describe the basic diet

19. Describe energy metabolism.

20. Define energy metabolism.

21. Describe involuntary and voluntary work.

22. Define the basal metabolic rate and discuss factors influencing the BMR.

23. Factors influencing the total energy requirement.

24. Explain how energy is measured.

25. Identify the individual nutrients of which foods are composed and their functions in the body.

Transp 4 26. Define food and explain its functions in the diet.

27. List classes of nutrients.

28. Describe the functions, sources, deficiency diseases, and daily requirements of each nutrient.

Transp 5a-5b 29. Define Recommended Dietary Allowances.

30. Describe the Reference Man and Reference Woman.

31. Discuss individual adjustments made to the standard RDA caloric allowances to allow for variations in energy metabolism.

32. Discuss the major changes to the 1974 revisions.

33. Discuss common errors made in using and quoting the RDAs.

34. Explain dietary allowances of other countries.

35. Discuss the Table of Food Values and their uses.

36. Given a daily menu, appropriate texts, pertinent data and a listing of RDA, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy per cent of all requested data must be accomplished correctly on Checklist 3ABR62231-II-1f.

Transp 6 37. Describe the process of digestion and absorption.

38. Define digestion and absorption.

39. Identify the organs of digestion and describe their functions.

40. Describe the role of enzymes in digestion.

41. Discuss the process of absorption.

42. Discuss nervous control of the digestive system.

BODY (31 hours 30 mins)

This unit of instruction totals 32 hours. The major areas of instruction are divided in approximately the following time frames:

Metric System:	4 hours
Lecture/Discussion:	1 hr
Demonstration:	.5 hr
Performance:	2.5 hrs

Terminology and Abbreviations: 6 hrs

Lecture/Discussion:	3 hrs
Demonstration:	1 hr
Performance:	2 hrs

Basic Nutr, Energy Metabolism, Basic Four: 4 hrs

Lecture/Discussion: 4 hrs

Food Composition: 11 hrs

Lecture/Discussion: 11 hrs

Recom Diet Allowances: 3 hrs

Demonstration:	1 hr
Performance:	2 hrs

Digestion & Absorption: 4 hrs

Lecture/Discussion: 4 hrs

Multiple instructors are required on the following days:

Day 7, 3 instructors for last 3 hrs
Day 11, 2 instructors for last 3 hrs

Use sub-summary sheet, attached at end of lesson plan, at the point where the lesson ends on each day of instruction.

Checklists are accomplished at the time indicated in the lesson plan.

1a. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.

Handout 1 copy of SW 3ABR62231-2-II-1a, Metric System, Part I and Part II, to each student.

(1) Explain the decimal basis of the metric system

Transparency # 7

(a) It is based on the decimal system with each unit being 10 times larger than the next smaller unit.

(b) The Metric System of Measure, Volume & Weight are all based upon the same fundamental unit. Thus, there are definite relationships between the units of the metric system which do not exist in other systems

Transparency # 8 & # 9

(2) Define the following terms: — Transparency # 10

(a) Metric System - a decimal system with its primary units of volume and weight derived from the meter.

(b) Meter - Primary unit of metric length

(c) Liter - The primary unit of metric volume

(d) Gram - The primary unit of metric weight

(3) Compare common household measurements with the measurements of the metric system. — Transparency # 11

(a) Yard to Meter

1 Yd = 36"

2 M = 39.37" — Use Metric Chart

3 Meter is 3.37" longer than yard.

Transparency # 12 (Problem)

(b) Quart to Liter — Transparency # 11

1 1 qt = 32 oz = 960 ml

2 1 Liter = 1000 ml

3 Liter is 40 ml larger

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(c) Ounce to Gram

1 1 oz = 30 gm (28.35)

Transparency # 13 (Problem)

2 Point out that 28.35 is the exact measure, but for all your projects and in your work in the hospital, use 30. gm

(4) Differentiate between metric weight and metric volume

Transparency # 14

(a) Weight - the degree to which an object is drawn towards the earth's gravity

(b) Volume - the measure of space occupied by a specific quantity of a substance.

INTERIM SUMMARY

(5) Explain the procedure for calculating and converting common household measurements into metric equivalents and vice versa.

Transparency # 15

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(a) To convert ounces to grams multiply the ounces by 30 (for exact weight, use 28.35)

(b) To convert pounds to kilograms, divide the pounds by 2.2

Transparency # 16 (Problem)

(c) To convert kilograms to pounds, multiply by 2.2

(6) Explain the different measuring instruments and their proper use:

Transparency # 17, 18

Show examples of each to students.

(a) Dry Measure

1 Measuring Spoons

a Used for accurate measures of minute quantities of liquid or dry ingredients

b Sizes

(1) 1/4 tsp

(2) 1/2 tsp

(3) 1 tsp

(4) 1 Tbsp

2 Measuring Cups

a Used for measuring larger quantities of dry ingredients

e.g. sugar, flour, rice, etc.

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- b Sizes
  - (1) 1/4 cup
  - (2) 1/3 cup
  - (3) 1/2 cup
  - (4) 1 cup
- 3 Scales
  - a Gram scale for portion sizes
  - b Platform scales for larger quantities such as meat, potatoes, vegetables, etc.

(b) Wet Measure

- 1 Measuring cups (glass)
  - a This measure is used for measuring various quantities of liquid ingredients, such as water, milk, corn syrup, etc.
  - b Sizes
    - (1) 1 cup
    - (2) 2 cups
- 2 Ladle - Used mainly for portioning liquids
- 3 Graduated Cylinder - This is used primarily for measuring tube feedings and is marked off in metric measures of cc's or ml's

(c) Other Methods

- 1 Water displacement

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a Solid fats can be measured in glass cups used for liquid measurements. This system is used when dry measuring cups are not available or when fat is too hard for normal measuring.

b Procedure - If you want 1/4 c. solid fat, fill cup to 3/4 c. mark w/ water, spoon in fat until water reaches 1 cup mark

Demonstrate

2 Scoops - Used mainly for portioning, but may be used for measuring liquid, semi-liquid or soft foods.

Transparency # 19

Explain equivalents of metric and household measures

(7) Explain the parts, operation use and care of the dietetic scale.

(a) Parts of the dietetic scale

1 Body

2 Rotating dial

3 Platform

4 Pointer

(b) Operation and use

Demonstrate proper use of gram scale

1 Carry scale to work area by its body, supporting the platform with the hand

2 Place scale on level surface

3 Place an empty container or piece of wax paper on the platform

4 Rotate dial so the pointer will read (0)

5 Place food to be weighed in container

6 Read weight on dial face

(c) Care of gram scale

1 Wipe up spilled food

2 Do not immerse scale in water to clean

3 Store where it is protected from excessive dust and food spill

(8) Use proper techniques to weigh foodstuffs on a gram scale

Following demonstration by the instructor students will perform problems as indicated in Study Guide pg 13, 14. Three instructors needed.

(9) Solve problems involving conversion of common household measurements to metric equivalents

Transparency # 20 gives problems

Hand out 1 copy of SW 3ABR62231-2-II-1b, Terminology and Abbreviations to each student. Students are to read SW as part of assignment to prepare for class on Day 8.

1b. Define commonly used medical and dietetic terms and abbreviations.

Transparency # 2 (Overview)

(1) Discuss the purpose of having Medical & Dietetic Terminology

(a) Uses - Used only for the purpose of medicine to describe the human body's:

Transparency # 21

1 Functions

2 Normal State

3 Abnormal State

4 Diseases and injuries which affect it.

(b) Each medical term is composed of 3 parts:

1 Root or stem - a word has a root or a stem which gives the word its primary meaning.

2 Prefixes - a prefix is a syllable, group of syllables, or a word placed before the stem to alter its meaning. Prefixes may explain location, number, direction or position

3 Suffixes - a suffix may be a letter or a syllable that gives additional meaning to, and clarifies, a word stem. It is placed at the end of a word

(c) How to learn to pronounce and spell medical terminology accurately:

1 Use of dictionary

2 Use of your ear

- a Listen to physician
- b Mark how they procounce words
- c Try in private
- d Talk with people who can help you pronounce the words
- e As confidence comes - take the plunge

(2) Discuss sources for finding the meaning of unfamiliar terms

Transparency # 22

(a) Medical Dictionary - Listing of medical, scientific and technical vocabulary of medicine.

Pass out a Medical Dictionary to each student.

(b) Glossary - Partial Dictionary of words and terms used in a particular text

(c) Index - Table, list or file, usually arranged alphabetically, for facilitating reference to topics, names or objects in a book.

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(d) Table of Contents - A compact systematic list of chapters and subjects included in each chapter.

(3) Explain why abbreviations are developed	Refer to the SW page 10 and AFM 160-8 for lists of abbreviations. Also explain that many Medical Food Service sections use abbreviations particular to their unit. Cite examples: $ = Salad
(a) Abbreviations, like words, are formed and established because of necessity.	
(b) They are important and special feature of all professional jargons. To understand them signifies a higher degree of knowledge of a profession.	
(c) They are helpful and time-saving in both writing and speaking. In the dietetic field there are many short-cuts by the utilization of abbreviations.	
(4) Define commonly used medical and dietetic terms and abbreviations	SW, page 10 Transparency # 23 thru 27
(5) Complete a programmed text on the use of terminology and abbreviations.	If time permits, students may begin this in class. SW is to be completed as an assignment. Collect Medical Dictionaries. Hand out one copy of SW 3ABR62231-2-II-1c, Basic Nutrition, Energy Metabolism, Basic Four, to each student. Students are to read SW as part of assignment to prepare for class on Day 9.

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1c. Describe basic nutrition

- (1) Define Diet
  - (a) The amount of food and drink a person consumes daily
  - (b) Special limited food and drink prescribed for a specific condition for weight loss or gain.
  - (c) A prescription of food
- (2) Identify the basic four food groups and the amount of each to be included in the daily diet.

  Show 8mm cassette: 5-51A, A Balanced Diet and 5-51e, Food Guides

  - (a) Milk
    - 1 2 cups daily - Adults

      Transparency # 28
      Page 2, 3 & 4, SW

    - 2 4 or more cups - Teenagers
    - 3 4 or more cups - children
  - (b) Meat -

    2 servings daily
  - (c) Cereal, potatoes, bread -

    4 servings daily - enriched.
  - (d) Vegetables and fruits -

    4 servings daily
    - 1 Include 1 serving fresh citrus
    - 2 1 Dark green leafy vegetable
- (3) Describe the basic diet:

  Page 2, SW

  The minimum number of servings for an adult from each of the basic four food groups

  Transparency # 29

(4) Define basic nutrition	Page 2, SW
(a) The science of foods the nutrients and other substances therein	
(b) Their action, interaction and balance in relationship to health and disease	
(c) The process by which the organism ingests, digests, absorbs, transports and utilizes nutrients and disposes of their end products.	
1d. Describe Energy Metabolism	Page 4, SW
(1) Define energy metabolism as: That energy required by the body for:	Transparency # 30
(a) Maintaining vital body functions	
(b) Voluntary activities of daily living	
(c) Digesting, absorbing and assimilating food	assimilating - converting of food nutrients into body tissue. Show Film TF8227F, Nutrition and Metabolism (15 minutes)
(2) Describe involuntary and voluntary work.	
(a) Involuntary - activities over which we have no control. Ex: Breathing, beating of the heart, circulation of the blood, metabolic activity of the cells, maintenance of body temperature.	

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(b) Voluntary - activities which we can control

Ex: sleeping, running, working, playing

(3) Define the basal metabolic rate as: Transparency # 31

The amount of energy required to carry on the involuntary work of the body and to maintain the body temperature.

(4) Factors influencing the BMR Transparency # 32

(a) Surface area - individual heat loss is always proportional to the amount of surface area exposed.

(b) Sex and Body Composition

1 A woman's BMR is generally 6 to 10% lower than that of a man.

2 Individual with highly developed active tissue will have a higher basal metabolic rate. than a person with deposits of inactive fatty tissue.

(c) Age: During the period of rapid growth a high basal metabolic rate will be measured because much energy is stored and then expended during growth.

(d) Endocrine Glands:

An overactive thyroid, the basal metabolism will be speeded up. This is due to an increased excretion of epinephrine (adrenaline) from the adrenal glands.

(e) State of Nutrition:

1 Undernourished individuals normally have a lower BMR Than individuals on well-balanced diets due to a decreased quantity of active body tissues.

2 If severe under-nutrition occurs, the BMR will decrease due to the destruction of body tissue.

(f) Sleep: The BMR is about 10% lower during sleep than in the waking state.

(g) Body Temperature: For each degree Fahrenheit the body temperature is elevated, the basal metabolism is increased by 7%.

INTERIM SUMMARY

(5) Discuss factors which influence the total energy requirement

Page 7, SW

What activities require total energy output?

Transparency # 33

(a) Muscular Activity: Next to basal metabolism, activity accounts for the largest energy expenditure. The more vigorous the activity, the more energy will be required.

(b) Mental Effort:

1 Excessive mental activity does not appreciably increase total energy requirements.

2 Increase in energy requirements due to the accompanying restless and tenseness rather than mental effort itself.

(c) Food:

1 Energy is expended in the digestion and absorption of food.

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2 Protein increases the metabolic rate by 30%.

CHO & Fat produce less increase

(d) Maintenance of Body Temperature: Body temperature is controlled by the amount of blood brought to the surface of the skin. When the surrounding temperature is low, heat is lost from the body surface at a faster rate. Energy requirements are usually increased in extreme heat or cold because the body either perspires or shivers to adjust to the surrounding temperature.

(6) Explain how energy is measured.

Page 8, SW

(a) Define energy as: the capacity to do work.

(b) Measured by the large calorie (Kilocalorie)

NOTE: The small calorie is only used when working in the field of physics. In dietetics, we use the large calorie.

(c) Caloric yield of CHO, PRO, FAT is the amount of energy given off during metabolism.

Transparency # ____________
Stress the 4-4-9 formula. This is very important and is used in calculating many many diets.'

1 Carbohydrate - 1 gram of pure carbohydrate yields 4 calories

2 Protein - 1 gram of pure protein yields 4 calories.

3 Fat - 1 gram of pure fat yields 9 calories.

Show Film: FLC6-115, Food & Nutrition (10 minutes)

1e. Identify the individual nutrients of which foods are composed and their functions in the body.	Handout out 1 copy of SW 3ABR62231-2-II-1d, Food Composition, to each student. Instructor presents material on CHO, fat and protein. Students are assigned specific minerals and vitamins on which they are to prepare a 5 to 10 minute briefing to be presented to the class on Day 10 and 11. They are to include functions in the body, daily requirements, deficiency diseases, and food sources. The instructor presents information on other nutrients. As each nutrient is discussed, instructor shows students food models which are sources of those nutrients.
(1) Define food Any edible substance, including both liquid and solid material, which is utilized to maintain and build body tissues, regulate body processes and supply energy and heat for the body.	
(2) Discuss the functions of food in the diet	Transparency # 35, 36
(a) Furnishes heat and energy	CHO, Fat and Protein
(b) Builds and repairs tissues	Includes bone, teeth and body tissues. Proteins, Calcium, Vitamin D, etc.
(c) Regulates body processes	All nutrients.
(3) List classes of nutrients	Page 2, SW
(a) Proteins	
(b) Carbohydrates	
(c) Fats	
(d) Vitamins	
(e) Minerals	
(f) Water	

(g) Fiber

Is really cellulose, an indigestible CHO but because of importance in the diet will be considered here as a separate nutrient.

(4) Describe the functions, sources, deficiency diseases and daily requirement of each nutrient.

(a) Proteins

Transparency # 37

1 Definition: Principle nitrogen-bearing parts of all plant and animal tissue.

2 Chemical Composition: Extremely complex organic compounds containing the elements carbon, hydrogen, oxygen, nitrogen, and with few exceptions sulfur.

3 Classifications of Proteins according to food sources:

Transparency # 38

a Complete Proteins: Contain all essential amino acids in sufficient quantities for sustaining life and promoting a normal rate of growth.

b Partially Complete Proteins: Will maintain life, but lacks sufficient amounts of amino acids to promote growth.

c Incomplete Proteins: Are incapable of replacing or building tissue and hence cannot support life, let alone promote growth.

4 Functions of Proteins

- a Supply the materials required for repairing worn-out body tissues and building new body tissues during periods of growth.
- b Proteins compose the main solid matter of muscles, organs and endocrine glands.
- c Blood proteins form together to compose hemoglobin and plasma.
- d Provide the basic materials for enzymes, antibodies and hormones.
- e Provide energy if not enough CHO and fat is consumed to fill the body's needs

5 Deficiencies

Transparency # 39

- a Protein deficiency in the U.S. is rare, but in portions of the country where knowledge of good nutrition is limited due to lack of income or education, miscarriages and premature births occur more frequently.
- b In underdeveloped countries of the world, a protein deficiency disease, known as Kwashiorkor, is a major health problem.

Kwashiorkor occurs most often in infants when the mother stops breast-feeding the baby and the local diet (which lacks protein) is given the child.

6 Allowances: The minimum daily protein requirement is 0.8 gram per kilogram of body weight. Allowance affected by several factors:

- a Body Size
- b Quality of protein consumed
- c Adequacy of caloric intake
- d Previous state of nutrition
- e Efficiency of digestion
- f Physiologic needs during growth, pregnancy, and illness.

(b) Carbohydrates

1 Definition: Simple sugars or substances which can be reduced to simple sugars by hydrolysis.

2 Chemical composition: Composed of carbon, hydrogen and oxygen

3 Classification

a Monosaccharides Group name for the simplest sugars containing only one sugar group per molecule and which cannot be hydrolyzed to a simpler form.

Page 4, SW
Transparency # 39

INTERIM SUMMARY:

Transparency #40

HYROLYSIS - Decomposition of a substance by the addition of water.

Chemical Symbol: CHO

Transparency # 41

Mono = one

(1) Glucose dextrose, corn sugar	
(2) Fructose - fruit sugar	
(3) Galactose - results from hydrolysis of milk sugar	
b Disaccharides - These sugars yield two molecules of the same or different monosacchrides by hydrolysis	Di = two
(1) Sucrose - table sugar	
(2) Maltose - malt sugar	
(3) Lactose - milk sugar	
c Polysaccharides - Complex carbohydrates formed by large numbers of monosaccharide units.	Poly = many
(1) Starch - form in which plants store carbohydrates	
(2) Glyogen - animal starch	
(3) Cellulose - skin of fruit and vegetables	Will be considered separately in later teaching step.
4 Functions:	Transparency # 42
a To furnish energy necessary to carry on the work of the body.	

b To "spare"protein.

Explain "sparing" actions as using CHO for energy. If insufficient CHO is eaten, protein will be used for energy instead of building and repairing body tissues.

c To prevent acidosis (or ketosis) during fat breakdown.

d To provide bulk for the proper functioning of the intestines.

5 Sources:

Transparency # 43

a Sugars, syrups, jellies, and jams

b Flour, cereal, crackers

c Fruits, vegetables, potatoes, sweet potatoes

d Milk

e Bread, cakes, pies and pastries

6 Deficiency - Causes a loss of energy to the body. Results in the body burning proteins and fats to replace the lost energy.

7 Allowance - There is no precise allowance but the normal adult requires approximately 500 calories per day from carbohydrate sources.

INTERIM SUMMARY:

(c) Fats

Transparency # 44

1 Definition:
Organic compounds composed of carbon, hydrogen, and oxygen formed by the union of fatty acids with an organic alcohol, glycerol.

2 Classification:
The fats themselves are not classified but the fatty acid portions of the fat molecule are classified into two categories:

- a Saturated- have no double bonds between the carbon atoms. They contain as much hydrogen as the carbon atoms are capable of holding.

Use chalk board to explain double bonds, or use 2 students - have them hold each other's hands.
Not capable of holding hands with anyone else. Drop one hand; can now each hold hands with someone else.

- b Unsaturated - have one or more double bonds between the carbon atoms so that they are capable of holding more hydrogen atoms.

3 Functions

- a Provides 40 to 50% of the body's energy requirement.

Transparency # 45

- b Provides padding for vital organs and nerves, and absorbs shock from the outer surface of the body.
- c Serves as a "sparer" of protein

Ask students to explain "sparing"

d Serves as insulation by preventing loss of heat from the body surface area.

e Serves as a carrier of fat-soluble vitamins.

f Delays emptying time of stomach, thus retarding hunger.

g Enhances the palatability of the diet.

h Acts as a lubricant to promote good elimination of waste material from the gastrointestinal tract.

4 Sources:

Transparency # 46

a Visible fats are those foods which are composed almost entirely of fat.

b Invisible fats are those fats which are in the diet because they are included in other foods but are not necessarily visible.

5 Deficiencies:

a Lack of fats causes the loss of fat-soluble vitamins A, D, E, and K.

b Up to 40% of the normal caloric intake would be lost if fats were omitted from the diet.

6 Allowance:

a No daily allowance for fats has been established since fats are added to the diet to bring the calorie intake up to the desired level.

b It is recommended that polyunsaturated fats be substituted for the more saturated fats in the diet.

INTERIM SUMMARY

(d) Vitamins:

Page 8, SW

Transparency # 47

1 Definition: The name given to a group of unrelated organic compounds needed only in minute quantities but which are essential for some specific metabolic reactions within the cells and are necessary for normal growth and maintenance of health.

2 Classification

a Fat-Soluble Vitamins

Excessive amounts of these vitamins in diet will be stored. Not absolutely necessary to receive in the diet each day.

(1) Vitamins A, D, E, and K

(2) Soluble in fat and in fat-solvents.

b Water-Soluble Vitamins

(1) B-complex Vitamins and Vitamin C (Ascorbic Acid)

Main B-complex vitamins with which we are concerned: Riboflavin-B_2

Thiamin -B_1

Niacin

The body stores a minimal amount of the dietary excesses and excretes the rest in urine so diet must include adequate amount daily.

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(2) Soluble in water

3 Functions:

  a Promote growth

  b Aid in producing healthy normal children

  c Protect against disease

  d Resist infection

4 Measurement

  a International Units (I.U.) - Vitamin A, D & E

  b Milligrams - vitamins K, B-complex & C.

  c Micrograms - Thiamin, Riboflavin, and Vitamin K

5 Specific vitamins

Page 11, SW

  a Vitamin A

Transparency # 48

    (1) Food Sources: Fish liver oils, butter, liver, cream, whole milk, cheese, egg yolk, fortified margarine

    (2) Function:

      (a) Maintenance of normal vision in dim light.

Transparency # 49

      (b) Essential for normal skeletal and tooth development

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- (c) Maintenance of integrity of the skin
- (3) Deficiency
    - (a) Night Blindness
    - (b) Lack of proper growth
    - (c) Dermatitis
    - (d) Faulty teeth and bone development
- (4) Allowance:
    - (a) Adult males 5000 I.U.
    - (b) Adult Female 4,000 I.U.

      New 1974 RDA revision lowered females
    - (c) Infants and children 1400 thru 3300 I.U.

6 Vitamin D

Transparency # 50

- (1) Food Sources: Fish liver oils, Fortified milk, activated sterols, exposure to sunlight
- (2) Functions
    - (a) Essential for normal growth and development
    - (b) Regulates the absorption of calcium and phosphorus.
    - (c) Regulates the calcification of bones and teeth.

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(3) Deficiency

(a) Rickets in children

(b) Osteomalacia in adults,

(c) Tetanic convulsions in infants

(4) Allowance: 400 I.U. for all ages and sex groups

c Vitamin E

Transparency # 51

(1) Food Sources Wheat germ oil, green leafy vegetables, legumes, nuts, egg yolk, vegetable oils

(2) Functions

(a) Antioxidant - prevents oxidation of Vitamin A and polyunsaturated fatty acids.

(b) Required for synthesis of coenzyme Q, a factor essential for release of energy from CHO and Fats.

(3) Deficiency: Not likely but first sign is anemia

(4) allowance: (1974 RDA)

Have students change values in SW (Pg 11) which has the 1968 figures

(a) 12-15 I.U. for adult male

(b) 10-12 I.U. for adult female

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(c) 4-10 I.U. for infants & children

d Vitamin K

Transparency # 52

(1) Food Sources: green leafy vegetables, wheat bran, soy beans oil, cheese liver, egg yolk

(2) Function:

(a) Essential for blood clotting

(b) Participates in oxidation in the tissues.

(3) Deficiency: Prolonged clotting time of the blood

(4) Allowance: Not known

INTERIM SUMMARY:

e Ascorbic Acid (Vitamin C)

Transparency # 53

(1) Food Sources: citrus fruits, tomatoes, strawberries, cantaloupe, cabbage, broccoli

(2) Function

Transparency # 54

(a) Formation of collagenous intracellular substances

Collagen - a protein found in most fibrous tissue structures, cartilage bone and vascular tissue

(b) Involved in cell respiration and functioning of enzymes.

(c) Helps body resist infection

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- (d) Involved in synthesis of steriod hormones from colesterol

(3) Deficiency:

- (a) Scurvy
- (b) Stunted growth
- (c) Subcutaneous hemorrhages

(4) Allowance:

- (a) 45 MG for adults
- (b) 35-40 mg for infants and children

f Thiamine — Transparency # 55

(1) Food Sources: Pork, liver, whole grain cereals and bread, soy beans, peanuts, legumes, egg yolks

(2) Function:

- (a) Functions in CHO, Protein & fat metabolism
- (b) Is necessary throughout life for tissue respiration

(3) Deficiency:

- (a) Beriberi
- (b) Fatigue
- (c) Lack of appetite

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(d) Emotional instability

(e) Cardiac failure

(f) Impairment of Central Nervous System

(4) Allowance
The allowance varies w/calorie intake:

Increased calories means increased need for Thiamine

1.2 - 1.5 mg for adult males

1.0 - 1.2 mg for adult females

0.3 - 1.2 mg for infants & children

g Riboflavin

Transparency # 56

(1) Food sources:

Milk, cheese, eggs, liver, kidneys, heart, green leafy vegetables

(2) Functions

(a) Essential for growth

(b) Essential for normal skin tone, digestion & vigor

(c) Essential in metabolism of protein & CHO

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(3) Deficiency:

- (a) Cheilosis
- (b) Retarded Growth
- (c) Blurred vision
- (d) Scaly skin
- (e) Burning and itching eyes

Cheilosis - cracking at corners of mouth

(4) Allowance:

- (a) 1.5 - 1.8 mg for adult male
- (b) 1.1 - 1.4 mg for adult female
- (c) 0.4 - 1.2 mg for infants & children

h Niacin

Transparency #

(1) Food Sources:

Lean meat, fish, poultry, cereals, breads, green vegetables, brewer's yeast

(2) Functions

- (a) Essential for tissue oxidation
- (b) Assists in normal functioning of skin and digestive tract

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(3) Deficiency:

(a) Pellagra

(b) Dermatitis

(4) Allowance:

(a) 12-16 mg for adult female

(b) 16-20 mg for adult male

(c) 5-16 mg for infants and children

INTERIM SUMMARY:

(e) Minerals

1 Definition: Those elements which remain largely as ash when plant or animal tissues are burned by the body.

Page 12, SW
Transparency # 58

2 Classification:

a Macro-nutrients - present in quantities larger than 0.005% body weight.

b Micro-nutrients - present in quantities smaller than 0.005% body weight.

c Trace elements - present in quantities too small to measure. Their function is not known.

3 Functions:

Transparency # 59

a Part of structure of every body cell.

b Regulatory activities

c Contraction of muscles

d Control water balance

e Maintenance of acid-base balance

f Nerve response to stimulation

g Metabolism of foodstuffs

- 4 Specific Minerals
  - a Calcium — Transparency # 60
    - (1) Function
      - (a) Essential for formation of bones and teeth
      - (b) Essential for maintaining heart rhythm
    - (2) Food Sources
      - Milk, Cheese, greens
    - (3) Deficiency
      - (a) Rickets, — Transparency # 61
      - (b) Poorly developed bones and teeth
    - (4) Allowance
      - (a) 800-1200 for adults
      - (b) 360-540 mg for infants
      - (c) 800 mg for children
  - b Phosphorus — Transparency # 62
    - (1) Function
      - (a) One of the buffer salts
      - (b) Essential for metabolism of CHO
      - (c) Essential for utilization of calcium in bones and teeth

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    - (2) Food Sources
      - milk, cheese, egg yolk

(3) Deficiency

(a) Stunted growth

(b) rickets

(4) Allowance

(a) Same allowance as Calcium for children & adults

(b) 240-40 mg for infants

c Potassium — Transparency # 63

(1) Function

(a) Intracellular fluid balance

(b) CHO and Protein metabolism

(2) Food Sources

meat, oranges, bananas, milk, cereals

(3) Deficiency

Rare

(4) Allowance

Unknown

d Sulfur

(1) Function

(a) Constituent of insulin

(b) Hair and nail growth

(2) Food Sources

egg yolk, cheese, milk — Protein foods

(3) Deficiency

Unknown

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(4) Allowance

Diet adequate
in protein

INTERIM SUMMARY

Transparency # 64

e Sodium

(1) Function

(a) Water
balance

(b) Osmotic
pressure

(c) Nerve
Irritability

(2) Food Sources

Table salt,
cured meats and
foods

(3) Deficiency

Not likely

(4) Allowance

0.5 mgs for adult

f Chlorine

(1) Function

Acid-base balance

(2) Food Sources

meat, milk, eggs,
salt

(3) Deficiency

Unknown

(4) Allowance

0.5 gms for adult

g Magnesium

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(1) Function

Bone and teeth
formation

(2) Food Sources

Cereals, nuts

(3) Deficiency

Unknown

(4) Allowance

(a) 300 to 400 mg for adult

(b) 60-70 mg for infants

(c) 150-250 mg for children

h Iron — Transparency # 65

(1) Function

Constituent of hemoglobin and myoglobin which transport of oxygen from lungs to tissues

(2) Food Sources — Transparency # 66

Liver, meat egg yolk, green leafy vegetables

(3) Deficiency

(a) Anemia

(b) Fatigue

(4) Allowance

(a) 18 mg for teenage males

(b) 10 mg for adult males. 18 mg for adult females under 50 years of age

(c) 10-15 mg for infants and children

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i Manganese

(1) Function

Thyroxine
formation

(2) Food Sources

Cereals

(3) Deficiency

Unknown

(4) Allowance

Unknown

j Copper

(1) Function

Oxidation of
fatty acids

(2) Food Sources

Liver, Shellfish

(3) Deficiency

Retards production of
hemoglobin

(4) Allowance

Unknown

k Iodine

Transparency # 67

(1) Function

Part of Thyroxine

(2) Food Sources

Iodized salt, seafood

(3) Deficiency

Goiter

(4) Allowance

(a) 80 to 140 mg for adult. The requirement decreases as age increases.

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(b) 35-45 mg for infant

(c) 60-110 mg for additional requirement increases as child gets older.

1 Zinc

(1) Function - needed for proper taste acuity.

(2) Food Source

Meat, liver, eggs, and seafood

(3) Deficiency

(a) Loss of appetite

(b) Failure to grow

(c) Decrease taste acuity

(d) Impaired wound healing

(4) Allowance

15 mg for most people

(f) Fiber

Page 14, SW

Transparency # 68

1 Definition of Fiber: The skin, seeds and structural parts of plant foods and the connective tissue fibers of meats.

2 Chemical Composition of Fiber: (or Cellulose) is an indigestible carbohydrate composed of carbon, hydrogen and oxygen.

3 Classification: Fibers are classified as 4 types

a Cellulose - provides indigestible "bulk"

Cellulose - often mistakenly called residue

b Hemicellulose - absorbs water to form a gel and increases bulk

Has a laxative effect.

c Lignins - gives body or consistency.

d Connective tissue of meat - provides bulk.

4 Function: To promote peristalsis, which causes the food to move through the intestinal tract.

5 Sources:

a In most fruits and vegetables in the pulp, skins, stalk, and leaves

b In meats, legumes, nuts and whole grain cereals.

6 Deficiency: Results in atonic constipation, also called "lazy bowel" constipation.

(g) Water

page 14, SW

Transparency # 69

1 Definition of Water: A chemical compound containing hydrogen and oxygen

2 Chemical Composition of Water: Chemical formula is H_2O

3 Functions:

a Water is a solvent in which all chemical changes that occur in the cells of the body take place.

b Serves as a transport for all products of digestion because blood, which is actually 90% water, carries nutrients to the cells.

c Regulates the body temperature through evaporation of moisture from the skin and lungs.

4 Sources:

a Water as such

b Water contained in foods

c Water formed by oxidation of foodstuffs in the body.

5 Daily Allowance: 6 to 8 cups of water daily are sufficient under normal conditions.

Water in excess of body needs is eliminated by the kidneys

1f. Given a daily menu, appropriate texts, pertinent data and a listing of RDA, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. 70% of all requested data must be accomplished correctly on Checklist 3ABR62231-2-II-1f.

Handout SG & WB 3ABR62231-2-II-1e

Students will accomplish C.O. during last hour of class.

(1) Define Recommended Dietary Allowances (RDA):

Levels of intake of essential nutrients considered, in the judgement of the Food and Nutrition Board on the basis of available scientific knowledge, to be adequate to meet the known nutritional needs of practically all healthy persons.

Page 2 of SW

Most recent revisions were released in February 1974

(2) Describe the Reference Man and Reference Woman

Transparency # 70

(a) Reference Man

Note that AFM 160-8 indicates Reference age is 25 based on 1964 RDA.

1 Weight - 70 kg

2 Age - 23-50 yrs

3 Lives in temperate climate

4 Is moderately active

(b) Reference Woman

1 Weight 58 kg (128 lbs)

2 Age - 23-50 yrs

3 Lives in temperate climate

4 Is moderately active

(3) Discuss individual adjustments made to the standard RDA caloric allowances to allow for variations in energy metabolism	Transparency # 71
(a) Body size	Based on desirable weight for height and health
(b) Age	After early adulthood is reached, there is a gradual decline in basal metabolism and in physical activity.
1 3-5% reduction for each decade between 35-55 years of age	
2 5-8% reduction for each decade between 55-75 years of age	
3 7-10% reduction for each decade after 75 years of age	
(c) Climate:	Winter: Increase in calories because of carrying heavy clothing. If a person is not adequately clothed, the calorie expenditure may increase considerably. Summer: Less calories if activity is reduced; more if activity is increased.
(d) Activity	Leisure Activities - require fewer calories e.g. reading, watching TV Vigorous Activities - will require more calories e.g. tennis, football, swimming
(4) Discuss major changes to the 1974 RDA revisions	Page 4, SW. Note changes to RDA on page 4, SW
(a) Energy requirements lowered	
1 For men, calories lowered by 100 calories per day, to 2,700 calories/day	For the Reference Man
2 For women, calories remain the same at 2,000/day	For the Reference Woman

(b) Protein

Lowered for adults from .9 grams per kg of body weight to .8 grams per kg of body weight

(c) Ascorbic acid

1 For men, lowered from 60 mg to 45 mg per day

2 For women, lowered from 55 mg to 45 mg per day

(d) Vitamin A

1 Remains 5,000 I.U. per day for men

2 Lowered from 5,000 I.U. per day to 4,000 I.U. per day form women

(e) Vitamin E

1 Form men, reduced from 30 I.U. to 15 I.U. per day

2 For women, reduced from 25 I.U. to 12 I.U. per day

(f) Vitamin B_{12}

1 Added in 1968. In 1974 was reduced from 5 mg to 3 mg per day for both men and women.

(g) Zinc

1 Only nutrient added in 1974

2 Requirements for men and women established at 15 mg per day

(5) Discuss common errors made in using and quoting the RDA's — Page 5 and 6, SW

(a) That everyone needs to consume the recommended amounts of nutrients.

1 Some nutrients recommended as adequate are less than the amounts regularly consumed and considered highly desirable by the majority of the U.S. population.

  - 2 There is more to consider than simply computing the amount of nutrient needed to meet the RDA standard.

- (b) That diets lower in nutrients than specified in the RDA are deficient.
  - 1 Recommendations are based on average population groups
  - 2 They are not estimates of nutrients needed per capiter
- (c) That RDA is the same as "requirements".
  - 1 Individuals have different nutrient requirements based on their genetic makeup
  - 2 RDA is estimated to exceed requirements of most individuals
  - 3 RDA are recommendations directed to insure the nutritional health of groups.
- (d) That all who adhere to RDA amounts will be well nourished.
- (e) That the RDA amounts are those to be found in a 'balanced' diet.
  - 1 They do not take into account special needs
  - 2 There will be a few who need more than the RDA
- (f) That if a person consumes only the RDA amounts he will not become obese.
  - 1 Nutritional requirements differ among individuals

2 Energy needs must be determined on an individual basis

(g) That nutrients not listed in the RDA are not important.

1 Present knowledge is incomplete.

2 RDA's have been established for only 1/3 of the essential nutrients.

(h) That an imitation food which the RDA nutrients of a natural food is equivalent to the natural food.

RDA's are recommendations for the amounts of nutrients that should be consumed daily.

(i) That habitual intakes of nutrients of a population should be changed to get closer to the RDA.

Energy allowances and nutrients are averages for population groups

(6) Explain Dietary Allowances of other countries

Page 6, SW

(a) Canada

1 Similar to our nutrient levels

2 Major exception is Vitamin C. Adult requirement listed as 20 mg as over 45 mg

(b) Great Britain has had dietary standards since 1933.

(c) Standards are intended to maintain good nutrition in representative individuals or groups.

(7) Discuss the Table of Food Values and their uses

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(a) Serves as a basis for comparing one food nutrient analysis with another. (b) Provide a method of calculating the total adequacy of a diet or an estimation of the diet's adequacy. (c) Provides references to answer numerous questions pertaining to the exact nutritive value of foods.	AFM 160-8 pages A1-1 through A1-18 and Introductory Nutrition by Helen Guthrie, pages 451 to 480 (Table of Food Composition) Circulate 1 copy of Handbook #8 & one copy of Bowes & Church around classroom so that students can become familiar with different food composition tables.
1f. Given a daily menu, appropriate texts, pertinent data and a listing of Recommended Dietary Allowances, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy percent of all requested data must be accomplished correctly on checklist 3ABR62231-2-II-1f.	Accomplish this checklist at this time.
	Handout 1 copy of SW 3ABR62231-2-II-1f, Digestion and Absorption and 1 copy of SW 3ABR62231-2-II-2a, Inflight Feeding, to each student. Students are to read this SW as part of their assignment in preparation for class on Day 12.
1g. Describe the process of digestion and absorption	
(1) Define Digestion and Absorption (a) Digestion - the process or act of converting food into materials fit to be absorbed and assimilated by the body. (b) Absorption - the taking up of nutrients and fluids from the digestive tract by the lymphatic and circulatory system	Page 1, SW
(2) Identify the organs and associate organs of digestion and describe their functions.	

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(a) Organs of digestion

1. Oral Cavity
    - a Lips
    - b Teeth
    - c Tongue
    - d Salivary glands
        - (1) Parotid - secretes ptyalin
        - (2) Sublingual - secretes mucin
        - (3) Submaxillary - secretes ptyalin and mucin.

2 Esophagus
- a Pharynx - commonly referred to as the throat
- b Epiglottis - thin flap separating the pharynx and trachea

3 Stomach
- a Fundus - top portion of stomach where food waits for approx 30 minutes to 2 hours and is churned and mixed with gastric juices to become "chyme".
- b Corpus - middle portion of stomach; chemical digestion continues here.
- c Pylorus - end portion of stomach; chyme empties into duodenum through the pyloric sphincter valve.

Digestion begins in the mouth.

Transparency # 72

Use Anatomical Torso to illustrate organs. Emphasize that organs shown are actual size.

In the mouth enzymes start digestive action on carbohydrates to convert them to simple sugars.

Transparency # 73

Food moves through by peristalsis
Peristalsis - constrictive waves up and down to push food through
Prevents food from passing into the trachea

Page 4, SW
Food enters the stomach through the cardiac sphincter valve

Transparency # 74

"Chyme - semi-liquid mass of food, saliva, and gastric juices.

Enzymes are added to begin the digestion of protein and fats

Partially digested food entries duodenum from here.

Alcohol does not need to be digested so it passes right through.

4 Small Intestine

a Duodenum - first part of small intestine approximately 10" long

(1) Chyme is mixed with intestinal juices, bile, and pancreatic juice

(2) The alkaline secretions of the liver, pancreas and intestine neutralize the acid of the stomach.

b Jejunum - middle portion of small intestine, 8-10 feet long. Most absorption occurs here.

(1) Digested Proteins, carbohydrates and fats enter the Jejunum and ileum to be absorbed through the villi

(2) Villi - millions of microscopic "fingers" projecting from the lining of the intestine. They transfer most usable nutrients into the blood and lymph systems.

c Ileum - last portion of the small intestine, 12-14 feet long. Absorption continues through the ileum.

5 Large Intestine - 5 feet long. All unabsorbed food particles proceed to the large intestine and remain 10-12 hours.

a Cecum - Large end of intestine. Last chance for food absorption and large quantities of water.

b Appendix - has no known function

c Colon - receives unabsorbed food particles. Most water is absorbed here and chyme is changed back to a semi-solid state.

92-97% of all food is absorbed here; little if any water

Transparency # 75

Final stages of digestion occurs here.

Page 5, SW
Transparency # 76

Water is reabsorbed through the large intestine

(1) Ascending

(2) Transverse

(3) Descending

(4) Sigmoid

d Rectum - holding place for waste. The waste, primarily cellulose, is fed on by a colony of bacteria which decays remaining food particles. Remain till evacuation through the:

e Anus

INTERIM SUMMARY of Organs of Digestion.

(b) Associate Organs of Digestion

Transparency # 77, 78

1 Salivary Glands

a Parotid

b Sublingual

c Submaxiliary

2 Liver - Manufactures bile, stores CHO as glycogen, stores Vitamins and iron and detoxifies harmful substances in foods and those produced by the body.

Page 5, SW

3 Gallbladder - Stores and condenses bile produced by the liver

4 Pancreas: Produces pancreatic juices which contain powerful enzymes aiding in digestion of proteins, fats and CHOs in the intestine.

Page 5 , SW

INTERIM SUMMARY - Transpar #79

(3) Describe the role of enzymes in digestion.

Page 6, SW

(a) Definition of an enzyme - a substance, protein in nature and formed in living cells, which bring about chemical changes but itself is not changed during these chemical reactions.

(b) Major classes of enzymes and the class of nutrients upon which they work.

Transparency # 80

1 Carbohydrase - Carbohydrates

Suffix - ase is used to identify an enzyme.

2 Proteinase - Proteins

3 Lipase - Fats

(c) End products of digestion of carbohydrates, proteins and Fats

Page 7, SW
Transparency # 81

1 Carbohydrates are broken down into Monosaccharides

2 Proteins are broken down into amino acids

3 Fats are broken down into fatty acids and glycerol

(4) Discuss the process of absorption

Page 7, SW

(a) Monosaccharides, amino acids, and water-soluble vitamins are absorbed through the blood capallaries of the villi of the small intestine and empty into the partial vein to be carried directly to the liver for storage or to be used by the body as energy or for building tissue.

Excess protein and carbohydrates not stored in the liver or used by the body will be converted to fat and stored in adipose tissue.

(b) Fatty acids and glycerol and fat-soluble vitamins absorbed through the lymph capillaries of the villi of the small intestine and pass into the lymphatic system where they then proceed to the blood stream and routed to the liver for storage or are utilized as energy.

When the liver can no longer hold the fat end product they are routed to adipose tissue where they are stored.

(5) Discuss nervous control of the digestive system

Page 8, SW

(a) Entire body is controlled by the nervous system

(b) The Autonomic Nervous System controls all of the involuntary functions of the body.

(c) 1 Sympathetic: Controls the body during emergencies; emotional stress such as fear, anger, excitement.

2 Parasympathetic: controls the body under normal circumstances of day to day living.

(c) Digestive system is not required for emergency action so it will slow down or even stop during extreme stress.

Ulcers may develop if conditions are prolonged.

Show film TF8227C, Digestive Systems (14 min)

APPLICATION:

1. Given a daily menu, appropriate texts, pertinent data and a listing of Recommended Dietary Allowances, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy percent of all requested data must be accomplished correctly on Checklist 3ABR62231-2-II-1f.

This checklist is administered as indicated in the body of the lesson plan (1f)

EVALUATION:

1. Evaluation is continuous throughout lesson.

2. Check all SW's and programmed text for completeness of answers following class discussion.

3. Checklist 3ABR62231-2-II-1f will be accomplished with seventy percent accuracy.

Conclusion (15 Mins)

SUMMARY: During this unit of instruction, instruction and reading assignments included the following:

1. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.
2. Explain the decimal basis of the metric system.
3. Define: Metric System, Meter, Liter, Gram
4. Compare common household measurements with the measurements of the metric system.
5. Differentiate between metric weight and metric volume.
6. Explain the procedure for converting common household measurements into metric equivalents and vice versa.
7. Explain the proper use of measuring instruments.
8. Explain the parts, operation, use and care of the dietetic gram scale.
9. Use proper technique to weigh foodstuffs on a gram scale.
10. Discuss the purpose of having medical and dietetic terminology.
11. Discuss the sources for finding the meaning of unfamiliar terminology.
12. Explain why abbreviations are developed.
13. Define commonly used medical and dietetic terms and abbreviations.
14. Complete a programmed text on the use of terminology and abbreviations.
15. Describe basic nutrition.
16. Define diet.
17. Identify the basic four food groups and the amount of each to be included in the daily diet.
18. Describe the basic diet.
19. Describe energy metabolism.
20. Define energy metabolism.
21. Describe involuntary and voluntary work.
22. Define the basal metabolic rate and discuss factors influencing the BMR.
23. Factors influencing the total energy requirement.
24. Explain how energy is measured.
25. Identify the individual nutrients of which foods are composed and their functions in the body.

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26. Define food and explain its functions in the diet.

27. List classes of nutrients.

28. Describe the functions, sources, deficiency diseases, and daily requirements of each nutrient.

29. Define Recommended Dietary Allowances.

30. Describe the Reference Man and Reference Woman.

31. Discuss individual adjustments made to the standard RDA caloric allowances to allow for variations in energy metabolism.

32. Discuss the major changes to the 1974 revisions.

33. Discuss common errors made in using and quoting the RDAs.

34. Explain dietary allowances of other countries.

35. Discuss the Table of Food Values and their uses.

36. Given a daily menu, appropriate texts, pertinent data and a listing of RDA, analyze a diet for specified nutrients, compare with the RDA, and identify any nutritional inadequacies. Seventy per cent of all requested data must be accomplished correctly on Checklist 3ABR62231-II-1f.

37. Describe the process of digestion and absorption.

38. Define digestion and absorption.

39. Identify the organs of digestion and describe their functions.

40. Describe the role of enzymes in digestion.

41. Discuss the process of absorption.

42. Discuss nervous control of the digestive system.

REMOTIVATION:

The pending change-over to the metric system of measurement makes it important that you have a thorough understanding of the metric system along with its equivalent in the present system of measures in the U.S. However, even before this changeover occurs, you will be working with the metric system when you measure foods in grams and milliliters.

Using proper medical terminology and abbreviations, you will be able to better understand and communicate with other members of the medical team. This lesson illustrated what Medical Terminology is derived from and how it is used. This lesson also showed you where to look for definitions of abbreviations and terms used in the medical field. A good vocabulary of medical terminology is a must for anyone in the medical profession, as it is a needed reference to look up new words as you need them.

The material covered in basic nutrition is the basis for future lessons. You know which foods are to be included in the daily basic diet. Remember this well as you start learning the nutrients contained in specific foods and how to modify these foods for therapeutic diets.

Many of the diets you will be writing and preparing in the coming units of instruction will include increasing or decreasing the amounts of one or more of the nutrients in the diet. Only by knowing why these nutrients are important in the body and in which foods they are contained can you correctly plan and prepare the proper diet for the patient. In this unit of instruction you learned some basic facts concerning food composition and the functions specific nutrients play in the body. In following lessons you will be applying this new knowledge you have gained to analyzing and planning diets which will be a very important part of the medical care of the patient.

In studying the Recommended Dietary Allowances, you learned how these are used in determining the nutritional adequacy of groups of people. And you applied this knowledge by analyzing a daily menu for nutritional adequacy. Should it be necessary for you to calculate thenutrients from a daily menu, remember how to compare a daily intake with the RDA and evaluate the overall nutritional status of the patient.

And, finally, under Digestion and Absorption, you learned how food is used and metabolized in the body. By understanding the chemical and physical changes that foods undergo in the process of digestion, you can apply this knowledge to how foods are used - or sometimes why certain foods are withheld - in diet therapy (when foods or diet is used in treating certain conditions). With the knowledge of thse various aspects of basic nutrition, we can now begin to go into the study of diet therapy.

ASSIGNMENT:

Day 7: Complete SW 3ABR62231-2-II-1a, Metric System, Part I and Part II
Read SW 3ABR62231-2-II-1b, Terminology and Abbreviations

Day 8: Complete SW 3ABR62231-2-II-1b, Terminology and Abbreviations
Read SW 3ABR62231-2-II-1c, Basic Nutrition, Energy Metabolism, Basic Four
Read Chapters 2, 3 and 4, Introductory Nutrition, 2nd edition, by Guthrie

Day 9: Complete SW 3ABR62231-2-II-1c, Basic Nutrition, Energy Metabolism, Basic Four
Read SW 3ABR62231-2-II-1d, Food Composition
Read Chapters 6, 9 and 10, Introductory Nutrition, 2nd edition, by Guthrie

Assign students vitamins and/or minerals from following list to prepare a 5-10 minute briefing on Day 9 to include: sources, functions in body, daily allowance, and deficiency diseases:

Vitamin A
Vitamin D
Vitamin E
Vitamin K
Vitamin C
Thiamine
Riboflavin
Niacin

Calcium
Phosphorous
Potassium
Sulfur
Sodium
Chlorine
Magnesium

Iron
Manganese
Copper
Iodine

Day 10: Complete SW 3ABR62231-2-II-1d, Food Composition
Read SW 3ABR62231-2-II-1e, Recommended Dietary Allowances
Read Pages 20-33, Normal and Therapeutic Nutrition, 14th ed, Corinne Robinson
Read AFM 160-8, Applied Clinical Nutrition, Chapter 2

Day 11: Complete SW 3ABR62231-2-II-1e, Recommended Dietary Allowances
Read SW 3ABR62231-2-II-1f, Digestion and Absorption
Read pages 17-28, Normal and Therapeutic Nutrition, 14th ed, Corrinne Robinson
Read SW 3ABR62231-2-II-2a, Inflight Feeding

Day 12: Complete SW 3ABR62231-2-II-1f, Digestion and Absorption

Study for test to be given on Day 13.

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END OF DAY SUMMARY

SUMMARY:

1. Restate objectives of the lesson.
2. Emphasize the areas of major importance.
3. Use oral questions to determine areas to be retaught.

ASSIGNMENT:

1. Identify study material.
2. Give cause for student to study assignment.
3. Mention method of study.

INTRODUCTION TO NEW DAY'S WORK

1. Arouse student interest
2. Review items of major importance.
3. State objectives to be covered on this particular day.
4. Continue presentation beginning where it ended the previous day.

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LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE MSDB Wilson 21 Jan 75	INSTRUCTOR
COURSE NUMBER 3ABR62231-2	COURSE TITLE Diet Therapy Specialist
BLOCK NUMBER II	BLOCK TITLE Nutrition and Diet Therapy

LESSON TITLE
Applied Clinical Nutrition

LESSON DURATION

CLASSROOM/Laboratory 56 hours	xxxxxxxxx Complementary 16 hours	TOTAL 72 hours

POI REFERENCE

PAGE NUMBER 9,10,11,12,13	PAGE DATE 8 Oct 74	PARAGRAPH 3a-q

STS/CTS REFERENCE

NUMBER STS 622X1	DATE

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Hot/Cold Food Cart Demonstration Table Patient trays Tray Appointments Sauce Pan Food Blender Food Grinder Measuring Cups Hot Plate (See back)	None	None	SW 3ABR62231-2-II-2a, Applied Clinical Nutrition (Inflight Feeding) SW 3ABR62231-2-II-2b Applied Clinical Nutrition (Therapeutic Nutrition) (See back)

CRITERION OBJECTIVES AND TEACHING STEPS

3a. Explain Cooked Therapeutic Inflight Meals (CTIM) and preparation of therapeutic inflight meals.

3b. Identify the objectives of therapeutic diet regimens.

3c. Identify the therapeutic modifications of the regular diet and indications for their use.

3d. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items on checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.

3e. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70% accuracy. Record on checklist 3ABR62231-2-II-3e.

3f. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the trays must be correctly identified on checklist 3ABR62231-2-II-3f, using AFM 160-8.

ATC FORM AUG 72 770

☆ GPO: 1972 779-395/2

A

Graphic Aids Cont'd

SW 3ABR62231-2-II-2c, Applied Clinical Nutrition (Diet Modifications)
SW 3ABR62231-2-II-2d, Applied Clinical Nutrition (Writing Therapeutic Diets)
SW 3ABR62231-2-II-2e, Applied Clinical Nutrition (Professional & Patient Relationships)
AFM 160-3, Applied Clinical Nutrition
Textbook, Normal & Therapeutic Nutrition, 14th edition, by Corrine H. Robinson
AF Form 1740, Therapeutic Diet
MACM 164-1, Cooked Therapeutic Inflight Meals

Audio Visual Aids
Transparencies, Therapeutic Nutrition Set
Transparencies, Diet Modifications Set
Transprencies, Writing Therapeutic Diets Set
Transparencies, Professional & Patient Relationships Set Food Models, Wax and Paper
Film: MN-10220C, The Diabetic Patient (28 mins)
MN-10220D, The Cardiac Patient (23 min)

Equipment in Lab Cont'd

Graduated Cylinder
Cutting Board
French Knife
Cheese Cloth
Spoon
Food for Laboratory
Selected Packaged Foods

LESSON PLAN (Part I, General) CONTINUATION SHEET

CRITERION OBJECTIVES AND TEACHING STEPS (Continued)

3g. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.

3h. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within + or - 1%. Record data on checklist 3ABR62231-2-II-3h.

3i. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:

(1) Total number of meals required for one day.

(2) All menu items allowed on the diet.

(3) Food selections made from extended menu whenever possible.

(4) Correct format.

(5) Correct quantities of menu items allowed.

(6) Correct prefixes for diet identification (whenever necessary).

(7) Correct meal pattern used as basis for menu.

3j. Using the appropriate exchange lists in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j for each menu.

3k. Describe principles of medical ethics and conduct to follow when dealing with professional staff, patients, visitors and the public.

3l. Explain the psychology of serving patients.

3m. Explain the purposes and procedures for conducting ward rounds and visits.

3n. Discuss procedures for assisting patients in selecting food items for their diets.

3o. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.

3p. Describe procedures for assisting disabled ambulatory patients through the cafeteria line.

3q. Using another student as a patient, roleplay a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741 provided on checklist 3ABR62231-2-II-3q:

(1) Height and Weight

(2) Sex, age

(3) Where and when the patient eats

(4) Food likes and dislikes

(5) Previous diet orders

(6) Occupation

LESSON PLAN (Part I, General) CONTINUATION SHEET

CRITERION OBJECTIVES AND TEACHING STEPS (Continued)

(7) Typical meal patterns

(8) Who prepares the food

(Teaching steps listed in Part II)

D

PART II - TEACHING GUIDE

Introduction (20 Mins)

ATTENTION: During this unit of instruction you will learn about Inflight Feeding and how to prepare therapeutic inflight meals. The Aeromedical Evacuation of patients from various parts of the country and the world, requires some control over their diets enroute. A special system has been devised to assure that patients in the air-evac system receive nutritious meals, yet avoid the repetition of receiving the same meal twice in a row as they travel the air-evac system.

Therapeutic Nutrition will be covered and will provide you with background knowledge into the objectives of therapeutic diet regimes. The therapeutic modifications of the regular diet will be explained and an actual laboratory in modified food preparation will be performed.

Diet Modifications and the format of AFM 160-8, Applied Clinical Nutrition will be discussed. In this lesson the difference between menu and meal pattern will be explained. Also the diets listed in AFM 160-8 will be identified and explained.

Finally the knowledge gained up to now will be put to use in writing therapeutic diets. Putting in practice what you have learned. One of the really unique tasks for personnel in the Diet Therapy Field is the planning and calculating of modified diets, therefore this unit of instruction is one of the most important to you as a Diet Therapy Specialist.

MOTIVATION: In this lesson you will be applying what you have learned in previous lessons. Throughout your stay in the service, you will be called upon almost daily to calculate, and write therapuetic diets. To become proficient and accurate in this job you must be aware of the purposes for therapeutic diets and understand the basic reasons of how and why they were developed. This unit of instruction will assist you in meeting this goal.

OVERVIEW: At the completion of this unit of instruction you will be able to:

Transp 1a-b

1. Explain Cooked Therapeutic Inflight Meals (CTIM) and preparation of therapeutic inflight meals.
2. Define Aeromedical Evacuation.
3. Explain the types of therapeutic inflight meals.
4. Discuss CTIM, Cooked Therapeutic Inflight Meals.
5. Explain the responsibilities of Medical Food Service in the preparation of cooked therapeutic inflight meals.
6. Explain what packaging materials are used for therapeutic inflight meals.
7. Identify regulations pertaining to therapeutic inflight meals.

Trans 2a-b 8. Define Therapeutic Nutrition.

9. Define Therapeutic Diet.

10. Discuss routine and non-rountine diets.

11. Discuss standard and non-standard diets.

12. Identify the objectives of therapeutic diet regimens.

13. Identify the therapeutic modifications of the regular diet and indications for their use.

14. Demonstrate selected therapeutic modifications of foods used on a regular diet.

15. Conduct therapeutic nutrition laboratory.

Trans 3a & 3b 16. Using AFM 160-8 and assigned texts, present a 5-10 min briefing on an assigned therapeutic diet to include items of checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.

17. Discuss the format of AFM 160-8, Applied Clinical Nutrition.

18. Explain the difference between menus and meal patterns.

19. Identify the diets listed in AFM 160-8, and answer questions concerning those diets.

20. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70% accuracy. Record on checklist 3ABR62231-2-II-3e.

21. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the tray must be correctly identified on Checklist 3ABR62231-2-II-3f, using AFM 160-8.

22. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.

23. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within + or - 1%. Record data on checklist 3ABR62231-2-II-3h.

Trans 4a-4c 24. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:

(1) Total number of meals required for one day.

(2) All menu items allowed on the diet.

(3) Food selections made from extended menu whenever possible.

(4) Correct format

(5) Correct quantities of menu items allowed.

(6) Correct prefixes for diet identification (whenever necessary)

(7) Correct meal pattern used as basis for menu.

25. Interpret and discuss meal patterns and therapeutic menus.

26. Identify factors involved in modifying or revising diets based upon individual preferences and tolerances.

27. Describe procedures for extending menus.

28. Explain food exchange list method of dietary analysis.

29. Compare the various food exchange lists: Composition and types of lists.

30. Calculate a Diabetic Diet.

31. Using the appropriate exchange list in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j.

Transp 5a -5d 32. Describe principles of medical ethics and conduct to follow when dealing with professional staff, patients, visitors, and the public.

33. Define medical ethics.

34. Describe the key principles of the Medical Ethics code.

35. Describe the responsibilitis of the diet therapy specialist on the medical team.

36. Explain the psychology of serving patients.

37. Explain the purposes and procedures for conducting ward rounds and visits.

38. Maintaining the central diet order file.

39. Discuss procedures in conducting patient interviews and diet historys.

40. Discuss procedures for assisting patients in selecting food items for their diet.

41. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.

42. Conduct classes in normal and therapeutic nutrition.

43. Explain the Diet Consultation Sheet SF Form 513.

44. Discuss charting procedures in patient records.

45. Describe procedures for assisting disabled ambulatory patients through the cafeteria line.

46. Using another student as a patient, role play a patient interview determining at least six of the eight following elements of the diet

history and recording the information on AF Form 1741 provided on Checklist 3ABR62231-2-II-3q.

(1) Height and Weight

(2) Sex, Age

(3) Where and when the patient eats

(4) Food likes and dislikes

(5) Previous diet orders

(6) Occupation

(7) Typical meal patterns

(8) Who prepares the food

BODY (55 hours 20 Mins)

PRESENTATION:

Conduct class by:
Lecture/Discussion - 17 hours
Demonstration - 1 hour
Performance - 38 hours

The major areas of instruction are divided in approximately the following time frames:

Inflight Feeding 2 hours
Lecture/Discussion 2 hours

Therapeutic Nutrition 4 hours
Lecture/Discussion: 1 hr
Demonstration: 1 hr
Performance: 2 hrs

Writing Therapeutic Diets: 16 hours
Lecture/Discussion: 4 hrs
Performance: 12 hrs

Professional & Patient Relationships 10 hours
Lecture/Discussion: 6 hrs
Performance: 4 hrs

Multiple instructors are required on the following days:

Day 13 - 3 instructors for last 3 hrs
Day 14, 15, 16 and 17 - 2 instructors for 6 hrs
Day 19 and 20 - 2 instructors for 6 hrs
Day 22 - 2 instructors for first 4 hrs

Use sub-summary sheet, attached at end of lesson plan, at the point where lesson ends on each day of instruction.

Checklists are accomplished at the time indicated in the lesson plan.

This portion of this unit of instruction (objective 3a) is conducted by:

Lecture/Discussion - 2 hrs

3a. Explain Cooked Therapeutic Inflight Meals (CTIM) and preparation of therapeutic inflight meals.

(1) Define Aeromedical Evacuation - the movement of patients under supervision to and between medical treatment facilities by air transportation.

Page 4, SW
Abbreviated A/E

Transparency # 6

(2) Explain the types of therapeutic inflight meals.

Page 6, SW
Distribute one copy of MAC Manual 164-1, CTIM to each student.

(a) Box Type

1 Most commonly used

2 Consists basically of sandwiches desserts, milk beverage and additional items such as relish, condiments and tableware.

3 Without refrigeration consumption within five hours is required

This restricts their use to short A/E flights or to the first meal on long flights.

4 With refrigeration, total time from preparation to consumption must not exceed 24 hours

(b) Discuss CTIM, Cooked Therapeutic Inflight Meal:

Transparency # 7

1 Developed to provide a hot meal to patients on therapeutic diets.

2 Meals contain chilled bite-size meat or sauteed chicken; a fresh or canned potato or substitute; and a canned vegetable.

3 Meals are refrigerated, never frozen.

4 Meals are served with all necessary supplements for a completely accurate diet.

5 Meals are partially cooked with final cooking aboard the aircraft.

6 Meals are planned around four basic dinner and supper menus.

Refer to SW, page 8
Transparency # 8

7 Selected locations around the world provide these meals for world wide air-evacuation flights

Refer SW, page 9 & 10

Transparency # 9, 10

8 CTIM meals are always made to order on an as-needed basis. They are never prepared in advance or frozen.

9 Military Airlift Command (MAC) manual 164-1 describes complete procedures for planning, serving and calculating CTIMs

(3) Explain the responsibilities of Medical Food Service in the preparation of cooked therapeutic inflight meals

(a) Upon notification from AECC or ASF, complete MAC Form 449, CTIM Telephone Diet Order in duplicate.

AECC = Aeromedical Evacuation Control Center
ASF = Aeromedical Staging Flights
Refer Figure 4, page 11, SW

(b) Information to include:

Transparency # 11

1 Patient's Name

2 Date of flight

3 Flight number

4 Time required

5 Meal required

6 Name of person calling

7 Name of person receiving the call

8 Accounting credit date

Necessary so your department gets monetary credit for this meal.

(c) Forward original copy to receive meal credit, file second copy.

(d) Select the correct checklist to fit the requirements of the therapeutic diet ordered.

1 Checklists follow the meal patterns.

2 They are planned for one breakfast and four dinner/supper meals.

3 Checklists specify actual food items, exact portion sizes and packaging procedures.

4 Between meal feedings, if required, are included on the checklist and prepared at the same time as the meal.

5 The checklist provides the medical technician on the flight guidance in tray assembly.

(e) Prepare MAC Form 450 in duplicate after the meal is prepared

Refer SW, Figure 5, page 13. Have students follow instructions in MAC Manual 164-1 as you discuss.

1 One copy is packaged with the meal.

Transparency # 12

2 Second copy is attached to the topy of the flight lunch box.

(f) Label any type of meal prepared with the following information:

These will apply to CTIM meals as we box lunch meals.

1 Date and hour of preparation

Page 13, SW
Transparency# 13

2 Facility preparing the meal

3 Patient's name and grade

4 Origination and destination of patient

5 Diet order

6 Foods requiring refrigeration

7 Galley instructions, such as oven temperatures and heating times

8 Time before which the meal is to be consumed (only for box lunches)

(g) When more than one inflight meal is being prepared, each meal should be packaged seperately and clearly labeled to indicate:

1 The contents of each meal and any between meal feedings.

2 Unusual meal patterns

3 Special instructions

4 Other pertinent information, attached to DD Form 602, Patient Evacuation Tag.

5 Items requiring refrigeration, (such as flavored dessert gelatins for clear liquid diets) should be packaged separately and labeled "Refrigerate".

6 The patient's name and grade should appear on each label.

7 All food items, uncless commercially proportioned, should be wrapped to maintain freshness and to prevent spoilage.

(4) Preparation of therapeutic inflight meals

Page 14, SW

(a) Made to order on an as-needed basis by the cook, diet therapy specialist or other designated personnel

(b) Prepared according to standardized recipe and CTIM checklist.

(c) Meat is cut to bite size and vegetables in salads are chopped or shredded.

So patients do not need to use a knife.

(d) Hot food is portioned in a 3-compartment tray

(e) Preportioned sauce is heated and poured over bite sized meat

(f) Accessory items and cold food items are assembled, packaged and labeled

(g) If salads are included, vegetables are shredded or chopped.

(h) Tray is covered and marked with patient's name and diet nomenclature.

(i) Covered tray is inserted into the CTIM box prelabeled with a copy of MAC Form 450

(j) Checklist is placed in the completed lunch box for the information of the medical crew on the flight and the patient.

(k) Second gummed label, MAC Form 450, is attached to the top of the flight lunch box.

(l) Meal is immediately refrigerated to 40°F or less, but not frozen.

(m) Final cooking is completed aboard the aircraft in the galley kitchen.

  1 CTIM meals are served to patients requiring therapeutic diets aboard the C-141 and the C-9 aeromedical evacuation aircraft.

Refer figures 7 & 8 pages 17 & 18 of SW

Transparency # 15, 16

  2 These aircraft have kitchen galleys where the meals can be heated in the galley ovens.

(5) Explain what packaging materials are used for therapeutic inflight meals

- (a) Paper cups with lids
- (b) Aluminium foil, plastic wrap, wax paper
- (c) Paper and plastic bags
- (d) The inflight meal boxes and other containers are obtained through normal supply channels
- (e) Prepackaged food items are used whenever possible

(6) Identify regulations pertaining to therapeutic inflight meals.

- (a) AFM 146-2, Flight Feeding Manual
- (b) AFM 161-1, Flight Surgeon's Manual
- (c) AFR 146-16, Flight Meals
- (d) MAC 164-1, Aeromedical Evacuation Cooked Therapeutic Inflight Meals (CTIM)

Transparency # 17

INTERIM SUMMARY

Handout SW 3ABR62231-2-II-2b, Therapeutic Nutrition

MEMO: Boil chicken (1 chicken breast per 2 students) after class to use in lab on Day 13.

This portion of this unit of instruction (objective 3b and 3c) is conducted by:
Lecture/Discussion - 1 hr
Demonstration - 1 hr
Performance - 2 hrs

Three instructors are required for the demonstration/performance portion of the lesson. (Last 3 hrs, Day 13)

3b. Identify the objectives of therapeutic diet regimens.

(1) Define Therapeutic Nutrition:

Transparency # 18

The use of food as an agent in effecting recovery from illness.

(2) Define Therapeutic Diet

An adaptation of the normal diet to meet a specific health need.

(a) All diets are based on the "foundation" diet or "Basic" diet.

(b) "Therapeutic" or "modified" indicates that the diet has been changed from the normal diet.

These terms are used interchangeably.

(3) Discuss "routine" and "non-routine" diets.

Transparency # 19

(a) Routine - those diets considered standard that do not require calculation and modification

Refer to AFM 160-8, Ch 3

1 Regular

2 Soft

3 Full Liquid

4 Clear Liquid

(b) Non-routine

1 Those diets that require modification or calculation to meet individual needs of the patient.

2 All other diets listed in AFM 160-8 (other than in (3) (a) above.)

(4) Discuss "standard" and "non-standard" Air Force diets

Transparency # 20

(a) Standard Air Force diets would be any listed in AFM 160-8, Applied Clinical Dietetics.

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(b) Non-standard diets would be any diet requested that is not in AFM 160-8

Physicians sometimes want to use a diet that is not listed in the Air Force diet manual.

(5) The objectives of Therapeutic diet regimens

Page 3, SW

Transparency # 21, 22

(a) To maintain good nutritional status

(b) To correct deficiencies which may have occurred.

(c) To afford rest to the whole body or to certain organs which may be overworked.

(d) To adjust the food intake to the body's ability to metabolize the nutrients.

(e) To bring about a change in body weight whenever necessary.

(6) Relate therapeutic diet to the normal diet.

(a) Both use the RDA as a basis in planning food intake.

(b) Therapeutic diets are planned to include as many regular foods as possible.

INTERIM SUMMARY:

3c. Identify the therapeutic modifications of the regular diet and indications for their use.

Any one or more of the 5 purposes can be achieved by one or a combination of the following modifications of a regular diet. Explain that these modifications are to be noted for each diet in AFM 160-8.

Transparency # 23, 24

(1) List the therapeutic modifications that can be made to the Regular Diet.

(a) Change consistency -

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1 Pureeing, grinding, chopping or liquifying (in a blender) foods from the regular diet into a simpler form for ease in chewing and/or swallowing	
2 Used for:	
a Disorders of the mouth or esophagus	
b Patients with no teeth	
c For ease in chewing and swallowing	
d Patients unable to tolerate solid foods	
(b) Increase or decrease in energy value	Energy = Calories
1 Calories or increased or decreased depending on condition of patient	
2 Used for:	
a Weight loss	Patient would be given a high calorie diet
b Weight gain	Patient would be placed on a Calorie reduction diet
c Malabsorption	Disorders of the gastrointestinal tract usually requires increased calories to compensate for malabsorption
d Diabetes	Patients placed on a diet of specific calories to maintain their proper weight
(c) Increase or decrease the amounts of one or more nutrients	
1 When nutritional deficiency occurs, the intake of that specific nutrient is increased until deficiency is corrected.	
2 Some individuals may require a decrease in certain nutrients	

(d) Increase or decrease bulk	Explain difference between residue and fiber.
1 Bulk in the diet comes from cellulose found in skin, pulp and seeds of fruits and vegetables and from connective tissue of meat.	
2 Used for:	
a Patients with constipation require increase of bulk in their diet.	Increase consumption of raw fruits and vegetables
b Patients with ulcers, colitis, hemmorrhoids or following rectal surgery need a diet with decreased bulk	Used cooked fruits and vegetables; avoid "gassy" vegetables, melons, berries and foods that cannot be softened by cooking
(e) Provide foods bland in flavor	
1 Certain flavorings and seasonings must be omitted from the diets of patients with gastrointestinal ailments.	
2 Foods used should be chemically and mechanically non-irritating.	Chemically irritating - those which stimulate gastric secretions. Mechanically irritating - those foods high in roughage (fiber)
3 Used for patients requiring bland diet regimens or reduced fiber in the diet	
(f) Include or exclude specific foods	
1 When persons are alergic to certain foods, they must be omitted from the diet.	Foods most likely to cause allergies are: Milk, wheat and eggs

(3) Conduct therapeutic nutrition laboratory

(a) Prepare the following

1 Fortified cereal

2 Fortified beverage

a Chopped

b Diced

c Ground

d Pureed

e Liquify

Refer page 10-12, SW
Students will duplicate the instructor performance with fortified cereal and meat preparation

Equipment needed:

1. Cutting board - 1 per 2 students
2. French Knife - 1 per 2 students
3. Meat grinder
4. Food Blender - 1 per 2 students
5. Spoon - 1 each
6. Instant cereal - 1 each
7. Non-fat dry milk
8. Sugar
9. Chicken breasts - 1 per 2 students

CAUTION STUDENTS: Knives and blenders are extremely sharp

INTERIM SUMMARY

Handout SW 3ABR62231-2-II-2c, Diet Modifications
Hand out 1 set of 5 HEW booklets on HLP diets to each student

This portion of this unit of instruction (objective 3d through 3h) is conducted by:

Lecture/Discussion - 4 hrs
Performance - 20 hrs

Two instructors are needed for six hours on days 14, 15, 16 and 17

3d. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items on checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.

Students are assigned a therapeutic diet(s) on Day 13.

Diets are listed in last part of LP, under ASSIGNMENTS.

Students should be prepared to give their presentation on Day 14, 15, 16 or 17, as they are presented in sequency of LP

2 Inborn errors of metabolism require that certain foods be omitted from the diet.	Inborn errors = lack of an enzyme Most common inborn errors: Phenylalanine Hydroxylase (an enzyme) is missing; result is that the amino acid, phenylalanine, fails to form tyrosine. Use of the Phenylalanine Restricted Diet (Chapter 16 in AFM 160-8) corrects this deficiency. Galactosemia - because of the lack of an enzyme, body cannot use the sugar in milk, lactose, or galactose normally.
(g) Modify the intervals of feeding	
1 Many therapeutic diets require small amounts of food at frequent intervals to enable certain body functions to function properly	
2 Some over-active organs of the body need a chance to rest, so the intervals of feeding may be altered.	
(2) Demonstrate selected therapeutic modifications of foods used on a regular diet	Set up lab during break time prior to class Prepare chicken day before Wash hands before handling food
(a) Fortified foods	Show pictures of Mead Johnson products; Delmark egg products
1 Cereal	
2 Beverages	
(b) Meat preparation	Show other examples of pureed foods. Baby foods.
1 Sliced	
2 Chopped	
3 Diced	
4 Ground	
5 Pureed	
6 Blended	

(1) Discuss the format of AFM 160-8, Applied Clinical Nutrition	
(a) AFM 160-8, is divided into 22 chapters, all of which are arranged in approximately the same format with the exception of Ch 1 and 2.	Chapter 1 - explains the manual Chapter 2 - RDA
	Transparency # 25
(b) Each chapter includes:	
1 Indications for use	Gives medical conditions for which the diet is ordered; why the diet is required for that condition.
2 Ordering information	Special information required in the diet order.
a Explains dietary progression	
b Consistency of foods allowed	
c Nutritional adequacy of diet	
3 Approximate Nutrient content	For comparison to the RDA.
a Caloric content	
b grams of fat, protein, CHO	
c Amts of selected vitamins & minerals	
4 Food Suggestions	Begin to learn these "by heart" for each diet.
a Lists foods allowed	
b Lists foods to avoid	
5 Recommended meal pattern	
a Guide to amt & type of food allowed for 1 day	
b All therapeutic menus are based on the meal pattern	
(2) Explain the difference between menus and meal patterns	Refer to page 2, SW

	Transparency # 26, 27
(a) Menus indicate specific foods.	May list method of preparation e.g. baked chicken. (Always use food from the regular menu when planning modified diets)
(b) Meal Patterns indicate types and amounts of foods	Used as a guide in writing menus
(c) The menu is based on the meal pattern. All diets in AFM 160-8 have a prepared meal pattern.	Note page 3 in SB Whenever you write a menu for a diet be sure it is based on the meal pattern.
(3) Identify the diets listed in AFM 160-8, and answer questions concerning those diets.	Emphasize that the diets and terminology we always use in the AF is that given in AFM 160-8.
(a) Routine hospital diets	Chapter 3 Work with students in class on their workbooks throughout this unit. Have students present their assigned topics as you cover the chapter in the SG.
1 Regular	
a For patients not requiring modifications of any type to their diet.	
b Calories may vary depending on kind and amounts of food chosen.	
c Some patients may not tolerate gas forming foods while in bed due to decreased activity.	Point out the foods allowed and foods to avoid list and the Meal Pattern for regular diets.
2 Soft	para (3-6)
a Transitional between full liquid and regular diet	Point out recommended meal pattern
b If transition time is too great, use of the bland III diet is recommended.	
c Food is not mechanically soft.	Chopped up

3 Clear Liquid

- a Surgical Clear
- b Liberal clear

Show difference in AFM 160-8 para 3-1
Also has a meal pattern

4 Full liquid

Diet contains all foods which are liquid at room or will liquify at body temperatures

(b) Surgical Routines

Chapter 4
Continue working with students on SG in class

1 Diets following surgery of colon

Para 4-1

- a Is not a single diet
- b Ordered according to day of diet
- c Commonly used following intestinal or rectal surgery
- d Progression is not automatic

2 Post Gastrectomy Diet

Para (4-3)

- a Ordered after removal of part of the stomach
- b Consists of a 6 day progressive dietary regimen

Progression is not automatic

- c Patient receives small feedings frequently that are low in concentrated sweets and ice cold foods
- d Liquids are given 30-40 minutes after feeding to allow food to remain in the stomach long enough for digestion to occur.

3 Dumping Syndrome	Food is dumped into the jejunun almost immediately without benefit of digestion in the stomach
a Diet consists of six small meals of foods selected from the regular menu	
b Carbohydrates are restricted because of its effect on emptying time of the stomach	Carbohydrates speed up emptying of stomach as do liquids
c Liquids are given 30-40 minutes after the meal	
4 Diets following Tonsillectomy and Adenoidectomy (T&A)	Para (4-12)
a T&A Liquid	
b T&A Soft	
c Very cold foods are tolerated best	
d Milk not allowed on liquid as it produces phlem	Progression from T&A liquid to T&A soft is not automatic. No hot or cold foods may be ordered and may require food not be put inside food cart
(c) Progressive Bland Regimen	
1 Used primarily in treating peptic ulcer disease.	
a Ulcers in the stomach are called gastric ulcers	
b Ulcers in the duodenum are called duodenal ulcers	
2 Causes of ulcers are faulty eating habits, excessive smoking, excessive alcoholic beverage consumption, heredity, emotional conflicts, stress, nervous strain, trauma	

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3 Are usually found in men (more so than in women); especially in persons who are hard-working, naturally tense, and hard-worrying

4 In treating the ulcer, it is important to heal the wound, get relief from pain and prevent the ulcer from recurring

5 Physical and mental rest and diet are important in treatment.

6 Four bland diets are designed to treat these conditions

Progression from one diet to another is not automatic.

- a Bland I

  Primarily used in the treatment of peptic ulcer disease

  - (1) Most restricted of bland diets
  - (2) Consists of continuous feedings of 3-4 oz every hour
  - (3) Severely limited and nutritionally inadequate.

- b Bland II
  - (1) Less restrictive than Bland I
  - (2) Consists of six 10 oz meals of foods containing little or no fiber.
  - (3) In addition to foods allowed in Bland I diet, tender meat, fruits & vegetables (strained) are allowed.

- c Bland III
  - (1) Consists of three meals and three between meal feedings

(2) Used to help the patient adjust to regular eating habits

d Bland IV

(1) Most liberal of the bland diets

(2) May be used for home use

(3) Many foods may be used that are on the avoid list depending on patient tolerance

These indicated with an asterisk in diet manual

(4) Alcohol, coffee, and pepper are omitted entirely

(d) Minimal Residue and Fiber Restricted Diets

Chapter 6

1 Fiber is the seeds, structural parts, and skins of plant foods and connective tissue of meats.

Increase bulk in feces and promote peristalsis in large intestine.

2 Residue includes indigestible fiber and other products from normal life processes

Milk low in fiber but high in residue. It leaves an ash when burned by the body.

Residue & fiber important in the body to promote good elimination.

3 Ordered chiefly for the patient with rectal or intestional complication

a Minimal Residue diet used when fecal matter must be reduced to a minimum in the intestine.

(1) Should not be used for long term treatment

(2) Food selections are extremely limited

b Fiber Restricted diet used for disorders of the intestinal tract such as colitis, diverticulosis, diarrhea, dysentery, irritable bowel disorder and following rectal or intestinal surgery

(1) Is more liberal than Minimal Residue diet

(2) Includes fruits and vegetables whose fiber is softened by cooking

(e) Tube feedings

Chapter 7

Discuss method of preparation using AFM 160-8, Chapter 7

1 Used for patients with mental or physical illness who cannot or will not eat by conventional methods

2 Must be perfectly smooth and of pouring consistency so as not to plug the nasogastric tube

3 Ordered for each 24 hour period

4 Can be prepared for any diet listed in AFM 160-8

5 Following procedures are followed regardless of type of Tube Feeding prepared

Transparency # 28, 29

a Ordering data must include the number of calories required for each 24 hour period, the calories per ml, any restrictions, the number of feedings and quantity to be given at each feeding.

b All feedings must be strained through sterile gauze to prevent lumps.

c Formula can be held for a 24 hour period only.

d Strict sanitary procedures must be followed throughout preparation as tube feedings are very vulnerable to bacterial growth.

e Formula should be stored in a single-service disposable or sterilized container

f An air space should be left in each container to permit thorough mixing prior to use.

g The feeding must be labeled and dated with the patient's name, formula type, date and hour prepared, and other pertinent information.

h Feeding must be kept under continual refrigeration. Only the amount required for feeding should be removed from refrigeration prior to serving.

i Eggs used in formulas must always be pasteurized or cooked. Never use raw eggs. (Raw eggs in any form are not allowed to be served in Air Force hospitals.)

j Feeding should be warmed to body temperature (98° - 100° F.) prior to serving. Formula should never be warmed over direct heat or be over-heated.

k If diarrhea occurs, add two to four tablespoons of strained applesauce to every 1000 mg formula.

(f) Fat Restricted Diet

Chapter 8

Completely different from the Fat Controlled Diet.

Fat Restricted diet controls amount of fat; Fat Controlled restricts the type of fat.

1 Used in the treatment of gallbladder disease

a Gallbladder stores bile produced by the liver.

b Ingested fat stimulates contractions of the gallbladder to empty bile into the small intestine.

c Gallbladder can become inflammed or stones can block the flow of bile.

d Contractions to release bile are then very painful.

e Objectives of the diet are to provide adequate nutrients yet reduce dietary fat so that the gallbladder will not contract.

2 Methods of preparing food must be modified.

a Meats should trimmed of all visible fat

b Meats should be prepared by broiling, roasting, stewing or simmering; never by frying or cooking with fat.

c "Gas forming" foods or foods likely to cause distention are avoided.

d One teaspoon of butter is allowed per meal, but this can be omitted if a "No Free Fat" diet is ordered.

(g) Diets with modifications in minerals

Chapter 9

1 Sodium Restricted Diets

a Used in treatment of congestive heart failure, hypertension, renal disease, cirrhosis of the liver and toxemias of pregnancy.

b Term sodium refers only to sodium ion and not to salt (which contains sodium and chloride

c ALL sodium restricted diets MUST be ordered by the number of milligrams of sodium required

Never accept a diet order as "Low Sodium"

d 250 mg sodium diet

- (1) Most restrictive of the sodium diets
- (2) All foods prepared without salt
- (3) Foods containing significant amounts of natural sodium are limited.
- (4) Commercially prepared food containing sodium is omitted.
- (5) Special sodium restricted milk, bread and processed foods are used.

e 500 mg sodium diet

Same as 250 mg sodium diet except 16 oz of regular milk is used each day; special sodium restricted milk does not have to be used.

f 100 mg sodium diet

- (1) is a moderate sodium restriction
- (2) diet is the same as the 500 mg sodium diet except up to 3 slices of regular bread can be used in place of sodium restricted bread

g Regular diet without added salt -

- (1) very light sodium restriction

(2) foods can be lightly salted during preparation, but no salt is allowed on the table (or tray)

(3) obviously salty foods are omitted

h Calorie restrictions may be imposed along with sodium restriction

(1) Usually for the cardiac patient who needs to lose weight

(2) Frequently for the pregnant woman who is overweight, or tends to retain fluids or shows symptoms of toxemia

i Salt substitutes are never given a patient unless ordered by a physician

Salt substitutes are made fro ammonium or potassium which can be harmful to some patient (especially with kidney or liver disease.)

2 Potassium Restricted Diets

Show students table of potassi content of foods in AFM 160-8

a Used in treatment of kidney failure

(1) Chief function of kidneys is to filter waste products (as excess salts, urea, water) from the blood

(2) When kidney can no longer filter out these waste products, dietary potassium must be restricted

As in chronic renal failure

(3) Degree of restriction can be from 0 mg potassium to 1500 mg potassium

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(4) Potassium diets are calculated on a daily basis	
(5) Patient gets VERY individualized attention regarding his diet	
(6) Patients sometimes exist only on butterballs, butter soup and butter pudding where all calories and nutrients come from fat and sugar	Recipe for these in AFM 160-8, Chapter 14
3 Calcium Restricted Diets	
a Used for diagnostic purposes or acute stages of hypercalcemia and renal calculai	Usually at 125 mg calcium level
b Milk and milk products and calcium rich foods are avoided	
c For long range treatment, 400 mg calcium diet is usually used	Excludes only milk and cheese products
(h) Diets with Calorie Modification	Chapter 10
1 Calorie restricted	Explain the use of the meal pattern in AFM 160-8
a to bring about a weight loss or to maintain weight	
b A deficit of 500 calories per day should result in a weight loss of approximately one pound per week	Begin introduction to exchange lists
2 High Calorie	
a For patients who are underweight or recovering from long illness	
b Composed of regular diet with between meal feedings	
c Foods of high nutritional values are used not "empty" calorie foods	Show list of high calories feedings in AFM 160-8, pg 10-12

(i) Diabetic Diets — Chapter 11

1 Diabetes mellitus is a metabolic disorder where individual is not able to utilize glucose properly

2 Pancreas fails to produce adequate amounts of insulin (or none at all)

3 Diet is extremely important in controlling diabetes

  a Some patients control their diabetes with diet alone

  b Others need to take oral insulin or insulin by injection together with a controlled diet

4 Objectives of the diabetic' diet

  a Provide sufficient calories to obtain or maintain ideal body weight

  b Adjust daily intake of food to insulin

  c Prevent acidosis and insulin shock

  d Provide adequate diet to maintain good health and normal activity

5 Distribution of CHO throughout the day is of primary importance in planning the diet

  a This is dependent upon type of insulin taken

  b Refer AFM 160-8, para 11-3, for CHO distribution for various types of insulin

6 Planning Diabetic Diets — Transparency # 30

  a Exchange Lists — Point out foods as well as portion sizes

    1 Milk

    2 Vegetable "A"

    Vegetable "B"

(3) Bread	Emphasize to students that they will need to use the exchange lists daily, so should begin to memorize what food is on what list, the size serving for one exchange on each list
(4) Fruit	
(5) Meat	
(6) Fat	Emphasize difference between serving and exchange
	Show film MN-10220C, the Diabetic Patient (28 min) and MN-10220D, The Cardiac Patient (23 mins)
b Nutrient Content of each Exchange List	Page 31 & 32, SW Transparency # 31
Refer para 11-7, page 11-3 AFM 160-8	
c Calories of Exchange List Nutrient Components	Emphasize that students must memorize this for daily use in the field
(1) 1 gm CHO = 4 cal	Transparency # 32
(2) 1 gm Pro = 4 cal	
(3) 1 gm Fat = 9 Cal	Transparency # 33
d Procedure for calculating a diabetic diet	Refer page 11-11, AFM 160-8. This will be covered in detail later in this unit of instruction.
e Meal patterns for diabetic diets	
(1) Available in AFM 160-8 in distribution of 1/3's, 1/5's and 1/7's for the following caloric levels	
(a) 1000 Calories (for adults)	Transparency # 34
(b) 1200 Calories	
(c) 1500 Calories	
(d) 1800 Calories	
(e) 2000 Calories	
(f) 2200 Calories	
(g) 2400 Calories	
(h) 2600 Calories	

(i) 3000 Calories

(j) 1800 Calories (for children)

(k) 2600 calories (for children)

(2) With this many diabetic diets already calculated you should not have to calculate one from the beginning very often, but know where to find the information in your diet manual.

f Carbohydrate Replacement

Refer students to page 11-1, para 11-2, 4, c, 1-4 of AFM 16
8

(1) Normally required only for patients receiving insulin

Transparency # 35

(2) ONLY foods with CHO content are calculated for replacement

(3) Replacement is required.

Give students examples to determine CHO replacement required.

(a) When adult refuses 15 or more grams of CHO at any meal (or a child refuses 7 or more grams at any meal) replacement is made immediately

(b) When adult refuses a total of 15 grams or more of CHO for the day (but less than 15 grams at any given meal) replacement is given at bedtime.

(4) It is the responsibility of medical food service personnel to work with staff nurses in determining CHO replacement

(5) Notation should be made in patient's record if the replacement is refused.

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(6) Use Chart 11-16 of AFM 160-8 for CHO replacement exchanges

Page 11-13

Food Refused	GMs CHO	Unsweetened Orange Juice
1B veg	7	3 oz
1 Fruit	10	4 oz
1 Milk	12	5 oz
1 Bread	15	6 oz

(7) Unsweetened Orange Juice is suggested but any food with CHO value may be used with appropriate calculation

(j) Controlled Fat Cholesterol Diets

1 Used to control blood serum lipid levels for patients with atherosclerosis

2 Controls the kind of fat rather than the amount of fat

Fat Restricted diet controls amount of fat

3 Polyunsaturated fatty acids are substituted for saturated fatty acids

4 Foods rich in cholesterol are omitted

5 Diet is planned by "exchange lists" similar to the diabetic food exchange lists

6 Meats are divided into two groups

a Group A - higher in cholesterol, and fatty acids. Only 3 of 14 meat meals per week are allowed from this group

b Group B - meats are lower in cholesterol and fatty acids. Eleven of the 14 meat meals per week are selected from this group.

(k) Hyperlipoproteinemia Diets

These are not in AFM 160-8 as they are relatively new diets, but they are used frequently in AF hospitals.

Refer students to the set of 5 booklets on HLP diets.

Refer students to page 37 of SW

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1 Define hyperlipoproteinemia

hyper = above
lipo = fat
protein = protein
emia = blood

2 Hyperlipoproteinemia diets used for

- a Patients with atherosclerosis

  Definition: A lesion of large or medium sized arteries with deposits of cholesterol (from Dorland)

- b Patients with increased cholesterol and lipoproteins in their blood

  Lipoproteins are fats combined with proteins which circulate in the blood plasma

  Fats are insoluble in the bloo but when combined with protein they are soluble and can be carried in the blood stream.

3 Causes of hyperliproteinemia

- a Heredity
- b Intolerance of CHO
- c Dietary cholesterol

4 Five types HLP diets

- a Type I - Rare
  - (1) Probably caused by a genetic deficiency in lipoproteinlipase
  - (2) Usually detected in early childhood
  - (3) Child is placed on low fat diet
  - (4) Fat intake restricted to 25 to 30 gms per day
- b Type II - More common familial type
  - (1) Diet involves lowering cholesteral intake to less than 300 mgm per day and modifying P/S ration of 2

  - (2) Increase intake of polyunsaturated fats and decreasing saturated intake
  - (3) Veal, fish and poultry are limited to 9 oz per day
  - (4) Beef, lamb and ham limited to three 3 oz servings per week

- c Type III - Familial type; relatively rare
  - (1) Usually detected after age 20
  - (2) Peculiar feature is deposits of fat in palms of the hads
  - (3) First dietary requirement is to reduce body weight to ideal level
  - (4) Cholesterol intake is reduced to less than 300 gm per day
  - (5) Polyunsaturated fats are substituted for saturated fats
  - (6) CHO and fat intake are limited to 40% each of total calories
  - (7) Protein increased to 20% of total calories
  - (8) Sugars and sweets are eliminated

d Type IV - Common

(1) Often associated with diabetes and possibly atherosclerosis

(2) Reduce body weight

(3) Restrict CHO to not more than 40% of the total calories

(4) Restrict fat to not more than 30% of the total calories

(5) Protein would equal 30% of total calories

(6) Polyunsaturated fats is increased and cholesterol intake is restricted to 300 to 500 mgm per day

e Type V - Rare

(1) Usually associated with abnormal glucose tolerance and frequently with uncontrolled diabetes

(2) Usually detected in early adulthood

- (3) Reduce patient to ideal body weight
- (4) Increase protein to 25% of total calories
- (5) Restrict CHO to not more than 50% of total calories
- (6) Reduce fat to not more than 30% of total calories
- (7) Restrict cholesterol to 300 to 500 mg per day
- (8) Substitute polyunsaturated fats for saturated fats

f Benefits of the diet

- (1) Will not be immediate
- (2) Blood liquids will usually be reduced in a few weeks
- (3) Full benefits may not be apparent for 2 to 3 years
- (4) Diet is no guarantee a heart attack will not occur

g Calculating an HLP Diet

- (1) Diet order will usually include CHO, Pro and Fat in grams
- (2) If not, base these on the recommended percentages given for each type (I-V) HLP diet

Refer page 38 of SW

- (3) Diet is basically a Fat Controlled Diet

Refer to Chapter 12 of AFM 160-8

- (4) Calculations for CHO, Pro & Fat similar to a diabetic diet

(5) Substitute polyunsaturated fats for saturated fats

(6) Use chart on page 38 of SW when preparing HLP diets

(l) Dental Diets

1 Dental Liquid

a Used following extensive oral surgery or when a fractured jaw has been wired

b Diet consists of regular menu items blended to a liquid consistency

All foods must pass thru a straw.

Avoid seeds, berries, etc that may catch in patients' throat. If he gags with jaws wired, he could suffocate

2 Dental Soft

a Following minor oral surgery or with few or no teeth

b Patients are not restricted in their use of spices or condiments

Important thing is that no chewing is required.

c Foods are prepared, so as to require no chewing

d Regular food items that can be chopped or ground can be used.

(m) Protein Restricted Diets

1 Used in certain stages of renal or hepatic failure

2 Protein ranges can be from 0-5 grams (very severe restriction) or up to 20 to 40 grams)

a Negligible Protein - 0 to 5 gm

- (1) Calories supplied by fats and CHO alone, as butterballs, butter soup, butter pudding
- (2) Diet must be calculated on daily basis
- (3) Used for acute kidney or liver failure

b 20 gm Protein

- (1) Egg is allowed on the diet - one per day
- (2) Used for acute stages of kidney or liver failure

c 40 gram Protein

- (1) Allows some milk and meat
- (2) Used in certain stages of kidney or liver disorder

(n) Pediatric diets — Chapter 15, AFM 160-8

1 All diets must include child's age

2 May require some special consideration

3 Should be given foods he likes

4 Specific diets

- a Infant Soft
- b Child Soft
- c Child junior
- d Child regular

5 Meats should be chopped so child can feed himself

(o) Phenylalanine Restricted Diet — Chapter 16, AFM 160-8

1 Used in PKU

Phenylketonuria - an inborn error of metabolism

2 One of the essential amino acids

3 All babies are tested at birth for PKU

4 Usually can return to normal diet after 5-6 years

5 Child may be mentally retarded if not diagnosed

(p) Gluten Restricted Diet

1 Used in celiac disease in children

2 Non-typical spree in adults (or) Adult celiac disease

3 Restricts all foods containing gluten (found in flour)

(q) Purine restricted

AFM 160-8, Chapter 18

1 Required during acute attacks of gout

Gout; painful swelling of the joints, usually the knee ar ankle joints

2 Diet is low in purines

3 Purines are found mainly in meats, dried peas, and beans

Also gravies and meat extracts

4 Diet is low in fats

(r) Food allergies and intolerance

AFM 160-8, Chapter 19

1 Basic Elimination

a Used to diagnose a food allergy

b All foods known to cause food allergy are eliminated c Diet is continued for 7-10 days or sooner if improvement occurs

d If no improvement occurs the condition is not the result of a food allergy

e Any food may cause allergy, with protein the most common

f All foods containing the allergenic must be eliminated from the diet

2 Wheat, Egg and Milk Free Diet

a When a known allergy exists

b May be found individually or in combination

(s) Diets for Pregnancy

1 Requirement for all nutrients is increased during normal pregnancy

2 Diet should include at least 1500 calories daily

3 Sodium restriction is a common restriction due to the increased fluid retention in the tissues.

(t) Diets for ASF

Aeromedical Evacuation

1 Medical Food Service personnel are responsible for preparing therapeutic inflight meals

2 Regular diets are only provided if inflight kitchens are not available

3 All diets must include patient's name, grade, diet and expected number of hours between ground meals

Meal suggestions, Chapter 21

(u) Test diets

- 1 300 gram CHO Test Diet
  - a Given for 3 days prior to the glucose Tolerance Test
  - b Must consume at least 300 grams of CHO per day

Objective is not to limit CHO to 300 gm per day but to be sure they eat at least that much.

- 2 100 gram CHO Test meal- part of the glucose tolerance 2 hour post prandial test
- 3 VMA Test Diet
  - a Test for the catacholomine tumor
  - b Foods selected from regular diet
  - c Eliminates bananas, coffee, tea, chocolate, vanilla, alcohol, carbonated beverages, nuts, citrus fruits, and tomatoes.
  - d Patient remains on the diet for 3 days prior to taking test

3e. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70% accuracy. Record on checklist 3ABR62231-2-II-3e.

Administer checklists 3e thru 3h at this time.

3f. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the tray must be correctly identified on checklist 3ABR62231-2-II-3f using AFM 160-8.

3g. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.

3h. Given AFM 160-8 and a caloric restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within +or - 1%. Record data on checklist 3ABR62231-2-II-3h.

3i. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommend foods, correctly including five of the seven items listed below.

(1) Total number of meals required for one day

(2) All menu items allowed on the diet

(3) Food selections made from extended menu whenever possible

(4) Correct format

(5) Correct quantities of menu items allowed

(6) Correct prefixes for diet identification (whenever necessary)

(7) Correct meal pattern used as basis for menu

3j. Using the appropriate exchange lists in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j for each menu.

(1) Interpret and discuss meal patterns and therapeutic menus

(a) Diet therapy is the use of food as an agent in effective recovery from illness

(b) Illness may affect the utilization of certain nutrients

(c) Meal Pattern - a guide to the number of meals and the amounts of food served per meal.

INTERIM SUMMARY:

Handout SW 3ABR62231-2-II-2d, Writing Therapeutic Diets

This portion of this unit of instruction (objective 3i & 3j) is conducted by:

Lecture/Discussion 4 hrs
Demonstration 12 hrs

Two instructors are need for 6 hours on Day 19 & 20.

See items on previous project (objective 3i) for checklist items. Use extended menu, page 4. Use AF Form 1738 for this problem instead of spaces provided in SW.

Discussed in previous lesson

Refer page 2, SW for a therapeutic menu based on a meal pattern

- (d) Therapeutic Menu - lists specific foods the patient will receive based upon the meal pattern

(2) Identify factors involved in modifying or revising diets based upon individual preferences and tolerances

- (a) First factor to consider is the requirement of the prescribed diet
- (b) Limits imposed by patient's condition is second
- (c) Limits of the prescribed diet is another consideration
- (d) Finally the patient's likes and dislikes

(3) Describe procedures for extending menus

Transparency # 36
Page 3, SW

See page 4 in SW for sample extended menu

- (a) Use as many food items from the regular diet on modified diets as possible
- (b) Requires less substitution and less work
- (c) Draw arrows extending from the food item on the Regular Menu through all successive diets that the food is allowed on.
- (d) Make substitutions as necessary to complete the requirement of the therapeutic diets

(4) Complete problems 1 thru 15 on Writing Therapeutic Menus in SW

Page 15, SW

Students are to complete this criterion objective in class, under the supervision of an instructor.

Allow approximately 6 hours of class time. Use 1738s for thi exercise not space provided in SW

- (a) Use extended menu on page 4 of SW
- (b) Whenever a food item is available on the extended menu, use it! (if allowed)
- (c) Be sure to include any between meal feedings that are required.

(5) Explain food exchange list method of dietary analysis

(a) For diets that have restrictions on calories, carbohydrate, fat and/or protein.

Refer back to last lesson for the different food lists

(b) Foods are placed on each list depending upon their approximate nutrient content of CHO, Pro, and fat

(c) Exchange portion size will vary so all servings will be equal in CHO, Pro, Fat and Calories

(d) Exchange size and serving size are not necessarily the same

(6) Compare the various food exchange lists: Composition and types of lists.

(a) Diabetic

1 Most widely used method for the dietary treatment of diabetes

2 Composed of six food exchange lists

3 Chapter 11 in AFM 160-8

(b) Reduction

1 Based on the Diabetic exchange list with a more liberal selection of foods to pick from

2 Chapter 10 in AFM 160-8

Only interested in total calories, not CHO, Pro and Fat ratios. Point out differences between this list and the diabetic list

(c) Fat Controlled

1 Amount of fat is 30-40 percent of total

2 Polyunsaturated fats are substituted for saturated fats whenever possible

3 Exchange lists are broken down into sub groups

4 Chapter 12 in AFM 160-8

(d) Sodium Restricted

1 Often accompanied with a calorie restriction

Sodium Restr, Cal restr diets have been planned in AFM 160-8

2 Eliminates foods high in natural sodium content

3 Chapter 9 in AFM 160-8

(e) Bland

1 Is not included in AFM 160-8

2 These have been added to the study guide on pages 7, 8 and 9

(f) Combinations

1 Many times a calorie restriction will be ordered in conjunction with other modifications

2 These diets must be watched closely and accurately prepared

(7) Calculating a Diabetic Diet

Chapter 11, AFM 160-8

(a) AFM 160-8 has meal patterns for almost any diabetic diet order you will ever receive

All calorie levels covered in AFM 160-8 were discussed earlier.
Transparency # 34

(b) Carbohydrate distribtion in 1/3's, 1/5's and sevenths refers to the distribution of the total amount of CHO for each day in these ratios

Transparency # 37

(c) A detailed procedure to calculate a diabetic diet from the beginning is given in AFM 160-8, page 11-11

Step by step procedures are given

Go over procedure step-by-step in SW, page 10 and AFM 160-8 using form on page 11 in SW

Emphasize that this form is the reverse side of AF 1741, Diet Record and that the letters at top may be confusing at first. They are explained on page 11 of SW.

Following discussion on calculating diabetics diets, have students complete problem on bottom of page 13 in SW in class. Answer questions as necessary.

Administer Checklist 3ABR62231-2-II-3j at this time.

Handout SW 3ABR62231-2-II-2e Professional & Patient Relationships.

This portion of this unit of instruction (objective 3k through 3q) is conducted by:

Lecture/Discussion - 6 hours
Performance - 4 hours

Two instructors are needed for the first four hours on Day 22.

3k. Describe principles of medical ethics and conduct to follow when dealing with the professional staff, patients, visitors, and the public.

(1) Define medical ethics.

(a) Medical ethics are considered to be moral laws

(b) Guiding principles that help a man decide between right and wrong

(c) Every part of the medical profession has a code of ethics which helps make it one of the most respected of all professions

(2) Describe the key principles of the medical ethics code.

Explain Code of Ethics for Dietitians.

Page 3, SW

(a) Service to humanity is first consideration

- 1 Medical airman works for the common good of mankind
- 2 He helps patients regardless of their country, party, rank or religion
- 3 A spirit of service is controlling factor in his daily performance
  - a Persons working in a hospital should have a desire to help people and be able to work well with all types of people
  - b Be interested in the welfare of the patient and in the Air Force community as a whole
  - c Service to humanity should extend outside duty hours

(b) Conduct must be in accordance with the ideals of the medical profession

- 1 Medical airmen must demonstrate personal integrity
- 2 Maintain high standards of conduct
- 3 Demonstrate high degree of integrity and high standards of professional skill

(c) The patient must not be neglected.

- 1 Supervise production and service of food to give the patient the best possible food and service.
- 2 Take time to properly instruct patients on a diet.

(d) Medical Personnel must be capable, honest, courteous, and a follower of the Golden Rule

- 1 Exhibit professional skill

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2 Be knowledgeable in AFSC and give correct info

3 Be courteous in dealing with all types and ranks of individuals

(e) Medical personnel should neither minimize nor exaggerate the gravity of a patient's condition

1 Never discuss illness with patient or unauthorized persons

This is the right & duty of the patient's physician

2 Refer patient's questions to physician

3 If a medical airman has seen a patient's chart, he should not reveal what he has read there to the patient nor to anyone else.

4 If a patient persists in questioning a medical airman, he should report the matter to his medical supervisors, since the doctor may wish to discuss the matter with the patient.

5 Medical airmen should not tell patients what they know about the general nature of a patient's disease, nor give hints as to other possible diagnoses. Anything the medical airman says may be taken as a fact by an anxious patient.

6 In social visits and activities medical airmen should avoid discussion of illnesses or medical problems.

7 Medical airmen should never try to impress others with their medical knowledge; a little knowledge is truly a dangerous thing.

(3) Relationship with patients

Page 6, SW

(a) Patients are reason for our job

(b) Daily contact through ward rounds

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(c) You do patients no favors by allowing them foods they aren't supposed to have

(d) Never take your emotions out on the patient - greet them with a smile.

(e) Treat patients as individuals and guests - with consideration.

(f) Confidential information

(4) Relationship with hospital staff

(a) Physician — Page 7, SW

1 Involved with total welfare of the patient

2 Depends on dietary for nutrition support

3 Prescribes diet - dietary translates order to the correct foods and deliver

(b) Nurse — Page 8, SW

1 Transmits diet order from physician to MFS

2 Observes patients' eating habits, illness and acceptance of diet and transmits this info to MFS personnel

(c) Ward personnel

1 Provide nursing care for patient

2 Assist MFS by delivering trays to patients once MFS personnel deliver food trays to the ward

3 Inform MFS personnel of pertinent info regarding patient's eating habits

(d) Administrative personnel — Page 8, SW

1 MSA office keeps records of the food purchased and issued, wages, and equipment expenditures

2 Orderly room issues meal cards to authorized personnel

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3 Administration office prints menus, obtains forms, and maintains regulations

4 Record room personnel fill diet consult sheet in patients' records

(e) MFS personnel

1 Supervisor is responsible for motivating and directing all MFS personnel, including the diet therapy specialists, cooks and mess attendants

2 Diet therapy personnel must support the dietitian and she must support them in return

(5) Describe the responsibilities of the diet therapy specialist on the medical team

(a) Medical team is composed of specialists - each must respect and adhere to the professional decisions of others.

(b) Dietitian and diet therapy personnel are the experts in nutritional care of patients

(c) Each member of team must perform efficiently for total patient care.

(d) Demonstrate loyalty - each member of the medical team must make the hospitals' objectives his own objectives

(e) Work Hard - Accept responsibility and don't pass the buck

(f) Show initiative and ambition but work within the scope of your authority.

(g) Get along with your OIC and NCOIC. Ask them how you can improve yourself.

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(h) Get along with other Airmen, NCOs, and Officers. Avoid embarrassing others or putting them on the spot.

(i) Manage your personal life so that it doesn't reflect unfavorably.

(j) Dress appropriately.

(k) Strive for emotional maturity.

(l) Set your goals realistically and prepare for the immediate job ahead.

(6) Relationship with visitors and the public

(a) Everyone assigned to a hospital is responsible for upholding the image of the hospital and of the medical profession

(b) Visitors or any person representing the public may be under stress when visiting the hospital due to the illness of someone close to them

(c) Treat everyone with courtesy and respect

(d) Be careful to not indulge any information you know about any patient to any visitor or to anyone else.

31. Explain the psychology of serving patients

(1) Physiological factors

(a) Patients may have a physical inability to tolerate food

Ex: following surgery, patient can tolerate nothing but liquids

(b) Inactivity of bed rest affects digestive system

"Gassy" vegetables may cause patient discomfort

(2) Psychological factors

(a) Patient is away from their familiar environment (home) and placed in an unfamiliar environment (hospital)

(b) If the patient is family breadwinner, they are concerned for their family and how they are managing during his illness

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(c) Patients are in control of their own life prior to being hospitalized. As a patient, they are dependent upon others and no longer self-sufficient.	
(d) Hospital patient loses his privacy	Needs to preserve his self-respect
(e) These fears and anxieties may be expressed as anger at the food served, as well as those serving it.	You must learn to differentiate between these anxieties and valid complaints. Also, you must learn how to handle the patient's anxieties and help him through his difficulties.
(3) Emotional factors	All three may cause patient to lose appetite
3m. Explain the purposes and procedures for conducting ward rounds and visits	
(1) Maintaining the central diet order file	Page 11, SW
(a) Used at each meal in preparing Tray Identification forms	
(b) Information is compiled on all patients on a modified diet	One per patient
(c) Maintained in sequence decided upon by each individual hospital	Usually set up by wards
(d) Usually kept in Kardex file	
(e) Information must be correct and up-to-date and have latest information	Gathered from nursing personnel and patients on daily ward rounds
(f) Diet changes must be recorded immediately on the Diet Record so that all information is current	
(g) Minimum information required	
1 Patient's name	
2 Ward, room and/or bed number	
3 Diet prescription	
4 Special information concerning patient's likes or dislikes or other dietary comments	

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(2) Ward rounds and visits

- (a) Needs to be done for all bed patients at least once daily
- (b) All diet therapy personnel can participate in ward rounds - the dietitian, the diet specialist and the diet supervisor
- (c) To gather information from the patient to enable you to better serve his diet
- (d) Should be scheduled immediately after patient has finished his meal
- (e) Factors to be considered when conducting ward rounds or visits

Transparency # 38

  - 1 Personal Hygiene
    - a Clean uniform
    - b Clean shoes
    - c No apron on wards
    - d No body odor
  - 2 Attitude
    - a Willing to serve
    - b Putting needs of patient first
    - c Caring about your quality of work
    - d Be conscientious
  - 3 Rapport
    - a Introduce yourself
    - b Give name and duty section

Sgt ____________

Medical Food Service

(3) Discuss procedure in conducting patient Interview and Diet History

(a) May be useful in diagnosing nutritional inadequacies	
(b) Used as a basis to teach a new diet	
(c) Planning a new menu based on individual preferences	
(d) Diet interviews may be held in:	
1 Patient's room	Not in kitchen
2 Diet office or clinic	
3 Doctor's office	
(e) Should have privacy so there will be no distractions	
(f) Be prepared - bring paper and pencil with you	
(g) Never sit down on a patient's bed	This is MOST unprofessional
(h) Introduce yourself to the patient and be sure he understands why you are there and what you are to do. Establish rapport.	
(i) Adequate time must be given for the interview	Minimum, 30 minutes
(j) Proper time is essential	
1 Never at the end of a busy day	Too tired
2 Not immediately before patient discharge	More interested in going home
(k) Interview patients to find out their:	Transparency # 39
1 Sex, age	
2 Height, weight	
3 Cultural background	May not be eager to discuss this

4 Occupation	
5 Where, when, and with whom meals are eaten	
6 Who prepares meals	May need to counsel person who prepares meals if other than patient
7 Shopping facilities	
8 Economic status	May not be able to buy certain special foods
9 Food preferences	Very important
10 Typical meal pattern	
11 Previous diet order	If patient has been on diet before, much work will be eliminated
3n. Discuss procedures for assisting patients in selecting food items for their diets.	
(1) On the basis of information gathered in the interview with the patient, modify or revise the diet the patient is following to consider individual food preferences	
(2) On ward rounds, assist patients in selecting foods to conform to their diet	Especially when selective menus are used.
(3) Assist ambulatory patients on modified diets to choose their selective food items from the cafeteria line	These patients would come to the dining hall for their meals
(4) Point out different methods of food preparation	
(a) Baking	
(b) Broiling	
(c) Frying	
(d) Roasting	
(5) Show patients food models of correct portion sizes	Pictures
(6) Use handouts to emphasize their diet whenever possible.	

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3o. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.

(1) Physician prescribes diet

(2) Dietitian or Diet Supervisor responsible for instructing the patient

(3) Determine food preferences and eating habits early in interview

(4) Allow sufficient time

  (a) Begin instruction as soon as possible after patient arrives in hospital

  (b) Instruct daily, while on ward rounds

(5) Determine how much the patient already knows about food and nutrition

Page 18, SW

(6) Ascertain economic level and home life of patient

  (a) Budget limitations

  (b) Who does the cooking

(7) Develop patient's interest in the diet

(8) Explain why the diet is important

(9) Give the patient a written copy of his diet plan for his home reference

(10) Use food models, pictures, actual food trays, slides, posters, booklets, etc as part of the instruction

(11) Be sure instructional material is at a level the patient can understand

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(12) Be thorough in your instruction

(13) Teach patients about their nutritional needs

(14) Be sure you thoroughly understand the diet before you try to instruct the patient

(15) As a final check, ask the patient to repeat the instruction back to you

So you can be sure he understands

(16) Conducting classes in normal and therapeutic nutrition

Page 20, SW

- (a) Similar to individual diet instructions
- (b) Guidelines to follow
  - 1 Simplicity of language
  - 2 Time
  - 3 Logical sequence
  - 4 Graphic aids
- (c) Speak on nutrition to local groups such as "TOPS" (Take Off Pounds Sensibly) or "Weight Watchers"
- (d) You must be thoroughly familiar with your subject matter
- (e) Research your material

  For better understanding and clarification
- (f) Use chart, posters, and pictures to add emphasis to your talk

(17) Explain the Diet Consultation Sheet SF Form 513

Transparency # 40

- (a) Submitted by physician or dentist to the Diet Office indicating diet instruction required
- (b) Upon completion of requested diet instruction, the form is completed within 24 hours by the person giving the instruction

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(c) Sheet is signed with rank and job title

(d) Original copy of SF 513 is filed in the records section. It is a permanent part of the patient's medical file

(e) SF Form 513 is required for patients attending group diet instructions as well as individual instruction

(f) Keep a log of each diet instruction given including the diet, patient's name, physician ordering the diet, date give.

1 Required to give information regarding workloads, copies of diet handouts needed, etc

(18) Charting procedures in patient's records

Page 21, SW

(a) SF Form 507, "Clinical Record Report on ___________, or Continuation of SF ___________" is used for charting in patient's records.

(b) Words DIETARY PROGRESS NOTES are inserted in the title of the form, top and bottom

(c) Progress notes are made consecutively on one or a series of SF 507 forms

(d) Required for non-routine therapeutic diets prescribed for diabetic, cardiac, seriously ill, controlled fluid, and similar patients

(e) Not normally required for less complex therapeutic diets.

(f) Dietitian is only person authorized to write dietary progress notes on SF Form 507

AFM 168-4

(g) If no Dietitian is assigned the nursing service will make necessary notations on DD Form 640 "Nursing Notes"

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(h) The diet supervisor or diet specialist may not make such entries on either form

3p. Describe procedures for assisting disabled ambulatory patients through the cafeteria line

(1) Patients eat in dining hall for rehabilitation and for exercise

Saves food service personnel time

(2) May need assistance if patients are on crutches or in casts

(3) Patient can usually pick his own selection of food. All you cando is pick it up and deliver tray to patient's table

(4) If patient is on a modified diet, you would help him choose the proper food items to meet his diet requirements

3q. Using another student as a patient, roleplay a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741 provided on checklist 3ABR62231-2-II-3q:

Prior to having students accomplish this, two instructors will illustrate what is to be done.

Divide class into 3 groups of four students per group. Each member of the group role-plays the part of a patient and that of a diet instructor

(1) Height and weight

(2) Sex, Age

(3) Where and when the patient eats

(4) Food likes and dislikes

(5) Previous diet orders

(6) Occupation

(7) Typical meal patterns

(8) Who prepares the food

INTERIM SUMMARY

APPLICATION:

1. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items on checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.

2. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70% accuracy. Record on checklist 3ABR62231-2-II-3e.

3. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the trays must be correctly identified on checklist 3ABR62231-2-II-3f, using AFM 160-8.

4. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.

5. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within + or - 1%. Record data on checklist 3ABR62231-2-II-3h.

6. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:

a. Total number of meals required for one day.

b. All menu items allowed on the diet.

c. Food selections made from extended menu whenever possible.

d. Correct format.

e. Correct quantities of menu items allowed.

f. Correct prefixes for diet identification (whenever necessary).

g. Correct meal pattern used as basis for menu.

7. Using the appropriate exchange lists in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j for each menu.

8. Using another student as a patient, roleplay a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741 provided on checklist 3ABR62231-2-II-3q:

   a. Height and Weight

   b. Sex, Age

   c. Where and when the patient eats

   d. Food likes and dislikes

   e. Previous diet orders

   f. Occupation

   g. Typical meal patterns

   h. Who prepares the food

9. Students to complete these objectives in class, under the supervision of an instructor.

EVALUATION:

1. Evaluation is continuous throughout the lesson.

2. Check SWs upon completion of lesson.

3. To successfully pass the criterion checks, students must have accomplished the work, meeting the standards indicated on each checklist.

CONCLUSION (20 mins)

SUMMARY:

1. Explain Cooked Therapeutic Inflight Meals (CTIM) and preparation of therapeutic inflight meals.

2. Define Aeromedical Evacuation.

3. Explain the types of therapeutic inflight meals.

4. Discuss CTIM, Cooked Therapeutic Inflight Meals.

5. Explain the responsibilities of Medical Food Service in the preparation of cooked therapeutic inflight meals.

6. Explain what packaging materials are used for therapeutic inflight meals.

7. Identify regulations pertaining to therapeutic inflight meals.

8. Identify the objectives of therapeutic diet regimens.

9. Define Therapeutic Nutrition.

10. Define Therapeutic Diet

11. Discuss routine and non-routine diets.

12. Discuss standard and non-standard diets.

13. Identify the objectives of therapeutic diet regimens.

14. Identify the therapeutic modifications of the regular diet and indications for their use.

15. Demonstrate selected therapeutic modifications of foods used on a regular diet.

16. Conduct therapeutic nutrition laboratory.

17. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items of checklist 3ABR62231-2-II-3d, omitting no more than two of the six items listed.

18. Discuss the format of AFM 160-8, Applied Clinical Nutrition.

19. Explain the difference between menus and meal pattersn.

20. Identify the diets listed in AFM 160-8, and answer questions concerning those diets.

21. Using AFM 160-8 and food models, identify the foods which could be be used on each of four assigned diets with 70% accuracy. Record on Checklist 3ABR62231-2-II-3e.

22. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion sizes. Seventy percent of the errors on the tray must be correctly identified on Checklist 3ABR62231-2-II-3f, using AFM 160-8.

23. Given pertinent data on a patient's food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g with an accuracy of + or - 1%.

24. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations must be within + or -1%. Record data on checklist 3ABR62231-2-II-3h.

25. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:

(1) Total number of meals required for one day.

(2) All menu items allowed on the diet.

(3) Food selections made from extended menu whenever possible.

(4) Correct format.

(5) Correct quantities of menu items allowed.

(6) Correct prefixes for diet identification (whenever necessary)

(7) Correct meal pattern used as basis for menu.

26. Interpret and discuss meal patterns and therapeutic menus.

27. Identify factors involved in modifying or revising diets based upon individual preferences and tolerances.

28. Describe procedures for extending menus.

29. Explain food exchange list method of dietary analysis.

30. Compare the various food exchange lists: Composition and types of lists.

31. Calculate a Diabetic Diet.

32. Using the appropriate exchange list in AFM 160-8, write menus for five combination diets, correctly including five of the seven items on checklist 3ABR62231-2-II-3j.

33. Describe principles of medical ethics and conduct to follow when dealing with professional staff, patients, visitors, and the public.

34. Define medical ethics.

35. Describe the key principles of the Medical Ethics code.

36. Describe the responsibilitis of the diet therapy specialist on the medical team.

37. Explain the psychology of serving patients.

38. Explain the purposes and procedures for conducting ward rounds and visits.

39. Maintaining the central diet order file.

40. Discuss procedures in conducting patient interviews and diet historys.

41. Discuss procedures for assisting patients in selecting food items for their diet.

42. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.

43. Conduct classes in normal and therapeutic nutrition.

44. Explain the Diet Consultation Sheet SF Form 513.

45. Discuss charting procedures in patient records.

46. Describe procedures for assisting disabled ambulatory patients through the cafeteria line.

47. Using another student as a patient, role play a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741 provided on Checklist 3ABR62231-2-II-3q.

(1) Height and Weight

(2) Sex, Age

(3) Where and when the patient eats

(4) Food likes and dislikes

(5) Previous diet orders

(6) Occupation

(7) Typical meal patterns

(8) Who prepares the food

MOTIVATION AND CLOSSURE: This unit of instruction covered a variety of topics.

During Inflight Feeding, you learned how to prepare inflight meals should you be assigned to a base that has an Aeromedical Staging Flight operation. On long trans-ocean or cross-country flights, it is most important that a patient requiring a therapeutic diet be given one that is nutritionally adequate and therapeutically correct. You become part of the world-wide Air Force aeromedical system when you contribute to patient care under these circumstances.

When we discussed Therapeutic Nutrition, you learned the basics of diet therapy - the specific objectives of therapeutic diet regimes, and how the regular diet can be modified to meet the therapeutic needs of patients.

This lead into actual diet modifications, and during this portion of this unit of instruction, you began learning the many diets listed in AFM 160-8, Applied Clinical Nutrition. This portion really introduces you to what is the primary responsibility of diet therapy personnel - being able to plan therapeutic diets.

You then had actual experience in writing these diets by planning and calculating certain diets during class.

Finally, you combined all of this information together - an understanding of therapeutic nutrition, knowledge of diet modifications, and actual planning and calculation of diets - and acted the role of a diet instructor to give a diet instruction to a classmate. These responsibilities are ones that you will most frequently be called upon to do in the years ahead.

ASSIGNMENTS:

Day 12: Complete SW 3ABR62231-2-II-2a, Inflight Feeding

Prepare for test on Day 13

Read SW 3ABR62231-2-II-2b, Therapeutic Nutrition

Read Chapter 1, AFM 160-8, Applied Clinical Nutrition

Read Chapter 29; page 400-408, Normal & Therapeutic Nutrition, 14th edition, C. Robinson

Day 13: Complete SW 3ABR62231-2-II-2b, Therapeutic Nutrition

Read SW 3ABR62231-2-II-2c, Diet Modifications

Research and present a five to 10 minute briefing on one of the following diets (instructor will assign one of the following to each student). Students should be prepared to give their presentation on Day 14, 15, 16 or 17, as they will be presented in the sequence of the lesson plan.

a. Clear Liquid and Full Liquid

b. T&A Soft and T&A Liquid

c. Bland I and Bland II

d. Bland III and Bland IV

e. Minimal Residue and Fiber Restricted

f. Fat Restricted and Fat Controlled

g. Sodium Restricted and Potassium Restricted

h. Dental Liquid and Dental Soft

i. Neglibible Protein and 20-40 gm Protein

j. Purine Restricted and VMA Test Diet

k. Gluten Restricted and VMA Test Diet

m. 300 gm CHO Test Diet and 100 gm CHO Test Diet

Read chapters 3, 4 & 5 AFM 160-8, Applied Clinical Nutrition; Chapter 29; pages 500-504; Chapter 34, Normal & Therapeutic Nutrition, 14th edition C. Robinson

Day 14: Complete SW 3ABR62231-2-II-2c, Diet Modifications, thru portion of diets covered on Day 14.

Read Chapters 6, 7, 8 & 9 AFM 160-8, Applied Clinical Nutrition

Read Chapter 35, pages 498-500, 487-491, 562-573, 582-587, 590-593; Normal & Therapeutic Nutrition, 14th edition, C. Robinson

Day 15: Complete SW 3ABR62231-2-II-2c, Diet Modifications, thru portion of diets covered on Day 16.

Read chapters 10, 11; AFM 160-8, Applied Clinical Nutrition

Read Chapters 31, 30, 39, Normal & Therapeutic Nutrition, 14 edition, C. Robinson

Day 16: Complete SW 3ABR62231-2-II-2c, Diet Modifications, thru portion of diets covered on Day 16.

Read: Chapters 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, AFM 160-8, Applied Clinical Nutrition

Read: Chapters 42; pages 578-587; Chapter 23, pages 628-634, 474-479. 528-530; Chapter 21, Normal & Therapeutic Nutrition, AFM 160-8, Applied Clinical Nutrition.

Read 5 HEW booklets on HLP diets

Day 17: Complete SW 3ABR62231-2-II-2c, Diet Modifications

Prepare for test on Day 18

Read SW 3ABR62231-2-II-2d, Writing Therapeutic Dits

Day 18: Complete SW 3ABR62231-2-II-2d, Writing Therapeutic Diets thru portion covered on Day 18

Read Chapter 16 and page 400, Normal & Therapeutic Nutrition by C. Robinson

Day 19: Complete SW 3ABR62231-2-II-2d, Writing Therapeutic Diets, thru portion covered on Day 19

Day 20: Complete SW 3ABR62231-2-II-2d, Writing Therapeutic Diets

Read SW 3ABR62231-2-II-2e, Professional & Patient Relationships

Read pages 382 thru 393, Normal & Therapeutic Nutrition, C. Robinson

Day 21: Complete SW 3ABR62231-2-II-2e, Professional & Patient Relationships

Prepare for test on Day 22

Prepare a diet instruction to be presented on Day 22 from the following list. The instructor will assign one of the following diets to each student.

a. Soft

b. Sodium Restricted, 500 mgm

c. Bland II - Fat Cholesterol

d. Controlled (unrestricted calories)

e. Minimal Residue

f. Bland III

g. 40 gram protein

h. Dental Soft

i. 1000 Calorie Diet

j. Bland IV

k. 1800 Calorie Diabetic

l. Fat Restricted

m. T & A Soft

n. Fiber Restricted

Day 22: Read SW 3ABR62231-2-III-1a, Menu Interpretation

END OF DAY SUMMARY

SUMMARY

1. Restate objectives of the lesson
2. Emphasize the areas of major importance
3. Use oral questions to determine areas to be retaught

ASSIGNMENT

1. Identify study material
2. Give cause for student to study assignment
3. Mention method of study

INTRODUCTION TO NEW DAY'S WORK

1. Arouse student interest
2. Review items of major importance
3. State objectives to be covered on this particular day
4. Continue presentation beginning where it ended the previous day

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STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-1a

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION (METRIC SYSTEM)
PART I

September 1975

AIR TRAINING COMMAND

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-1a
September 1975

NORMAL NUTRITION (METRIC SYSTEM)
PART I

OBJECTIVES

After completing this Study Guide and Workbook you will be able to:

1. Explain the decimal basis of the metric system.

2. Define: Metric System, Meter, Liter, Gram.

3. Compare common household measurements with the measurements of the metric system.

4. Differentiate between metric weight and metric volume.

5. Explain the procedure for converting common household measurements into metric equivalents and vice versa.

6. Explain the proper use of measuring instruments.

7. Explain the parts, operation, use and care of the dietetic gram scale.

8. Use proper techniques to weigh foodstuffs on a gram scale. (This will be completed as lab projects.)

9. Identify the basic units of the metric system and the steps for converting household measurements to metric measurements.

This supersedes SW 3ABR62231-2-II-1a, May 1975

INTRODUCTION

The United States is one of the few countries of the world not already using the metric system for all weights and measures. As far back as 1821, John Quincy Adams brought attention to this relatively new system for measurement. In 1866, the National Academy of Sciences recommended that it be adopted for use in the United States. During the next 102 years, countries all over the world were changing to the new decimal system, but conversion in the U. S. was only a much-debated issue. In 1968 our Congress directed the Commerce Department to undertake an extensive study of the matter. Lawmakers in the Senate are now close to approving a bill authorizing limited conversion to this system of weights and measurements. Predictions are that the U. S. will completely convert to the metric system in the next 10 years.

As a diet therapy specialist, you will at times be called upon to convert certain household measurements into metric weights and measures. You will need to assist cooks to convert recipes to this new system. Storeroom personnel will need to be familiar with the change when meats, fresh produce and other subsistence items are issued in the new measurements. You will need to use dietetic scales and other measuring instruments for weigh out food portions.

INFORMATION

About 11% of U. S. manufacturing companies are currently using the metric system to some degree. Some examples are:

Drugs - metric weights and measurements have been used in the pharmaceutical industry since the mid-fifties.

Electricity - metric terms such as ampere, volt, watt and herts are already in common use.

Film - photographic film has long been described in millimeters, such as 16 mm movie film, 35 mm film for slides, etc.

Sports - skis are sold by centimeter sizes.

Weapons - the Army describes some artillery and shell measurements in millimeters.

DECIMAL BASIS OF THE METRIC SYSTEM

Much of the metric system is based on a single unit - the METER, which is 39.37 inches. It's a decimal system, meaning it is based on the number 10 with each unit being 10 times as large as the next smaller unit. Thus, the meter is divided by 100 and 1,000 to get centimeters and millimeters, respectively, and multiplied by 1,000 to get kilometers.

The metric system establishes a definite relationship between the linear meter and units of weight and volume. A gram is the weight of a cube of water one centimeter on a side. A liter is the volume of a cube 10 centimeters on a side, or 1,000 cubic centimeters.

The metric system of measure, volume and weight are all based upon the same fundamental unit. Thus, there is a definite relationship between the units of the metric system which does not exist in any other system.

The metric system has been universally accepted because it is consistent, logical and easier to use than the Avoirdupois system. To use our current system of measurement, we have to remember a confusing multiplicity of numbers if we want to convert measurements used every day. For example: (from the Avoirdupois system)

12 inches in a foot; three feet in a yard, 5,280 feet in a mile

8 ounces in a cup, 32 ounces in a quart, 128 ounces in a gallon

2 pints in a quart, 4 quarts in a gallon

16 ounces in a pound

With the metric system, we would have to remember only ONE number: 10 (and its multiples, which are extremely easy to calculate). In the metric system the multiples of 10 are always designated by the same prefix regardless of the base unit being used.

The most commonly used prefixes are:

Kilo =	1,000.00
deci =	0.1 (or 1/10)
centi =	0.01 (or 1/100)
milli =	0.001 (or 1/1000)

Thus: a kilogram is 1,000 grams, a decigram is 1/10 of a gram, a centigram is 1/100 of a gram, a milligram is 1/1000 of a gram.

And: a kilometer is 1,000 meters, a decimeter is 1/10 of a meter, a centimeter is 1/100 of a meter, a millimeter is 1/1000 of a meter.

You may find it easier to remember in this manner:

1 meter = 10 decimeters

1 decimeter = 10 centimeters

1 centimeter = 10 millimeters

Remembering that the U. S. dollar system is a form of metrics may aid you in understanding this system. Here we have units based on multiples of 10. For example:

1 dollar = 10 dimes

1 dime = 10 pennies

We would use the following metric units:

the meter (and its multiples) for length

the gram and the kilogram for weight

the liter and deciliter or milliliter for volume

METRIC TERMS DEFINED

a. Metric System - A decimal system with its primary units of weight and volume derived from the meter.

b. Meter - A measure of length, approximately 39.37 inches long. The primary unit of linear measure in the metric system.

c. Liter - A cube of 1/10 of a meter or the volume occupied by a kilogram (2.2 pounds of water) at 4°C. It is the primary unit of metric volume.

d. Gram - The primary unit of metric weight. The weight of 1/1000 of a liter or 1 cubic centimeter of water weighed in a volume at 4°C.

The following are some comparisons which will help you in converting to the metric system. You should already be familiar with most of these. If not, commit them to memory for you will use them often.

3 tsp = 1 T

16 T = 1 cup = 8 oz

1 cup = 240 ml

1 ml = 1 cc

*1 ml = 1 cc = 1 gm (water and milk only)

1 tsp = 5 gm = 5 ml

1 T = 15 gm = 15 ml = 1/2 oz

16 T = 240 ml = 240 gm = 1 cup = 8 oz

*Remember: a ml and a cc are always the same measure because both measure volume. Only when you are measuring milk or water does 1 gram also equal 1 ml or 1 cc.

Refer to AFM 160-8, Table 1A-10, page A1-53, for Abbreviations Generally Used. Additional abbreviations frequently used in food preparation are:

C = Cup

pt = pint

qt = quart

oz = ounce

or lb = pound

1. Comparison of Common Household Measurement with the Measurements of the Metric System:

a. Yard to Meter:

1 yard = __________ inches

1 meter = __________ inches

1 meter = __________ inches longer than the yard

b. Quart to Liter:

1 quart = __________ ounces = __________ ml

1 liter = __________ milliliters

1 liter = __________ milliliters larger than the quart

c. Ounce to Gram:

1 ounce = __________ grams

1 milliliter = __________ cubic centimeters

1 gram = __________ milliliter(s) (For water and milk only)

2. Metric Weight and Metric Volume:

Caution should be used when working with weights and volume not to confuse the two. The difference between the two is as follows:

a. Weight - The degree to which an object is drawn toward the earth's gravity.

b. Volume - The measure of space occupied by a specific quantity of a substance.

3. Procedures for Converting Common Household Measurements into Metric Equivalents and Vice Versa:

a. By accurate weight, one ounce equals 28.35 grams. For our purposes, it is allowed that we calculate one ounce as equaling 30.00 grams. You will be permitted to use 1 oz = 30 gms in most of your work in Air Force dining halls. Some exercises in this workbook require that you use the accurate conversion of 1 oz = 28.35 gms to give you practice in the precise conversion. Unless the exercise indicates that you are to use the 28.35 gms factor, you are allowed to use the 30 gms factor.

PROBLEM: You have a piece of roast beef that weighs 6 oz. What will be its weight in grams?

(at 30) __________ gm

(at 28.35) __________ gm

b. One kilogram = 2.2 pounds. To convert pounds to kilograms, divide the pounds by 2.2.

EXAMPLE: 154 lb = 70 kg

$$\begin{array}{r} 70 \\ 2.2 \overline{)\,1540} \\ \underline{154} \end{array}$$

PROBLEM: A patient that weighs 219 pounds would weigh __________ kg.

c. To convert kilograms to pounds multiply by 2.2.

EXAMPLE: 72 kg = 158.4 lbs

$$\begin{array}{r} 72\ \text{kg} \\ \times\ \underline{2.2} \\ 144 \\ \underline{144} \\ 158.4\ \text{lbs} \end{array}$$

PROBLEM: What would be the weight, in pounds, of a patient weighing 85 kg?

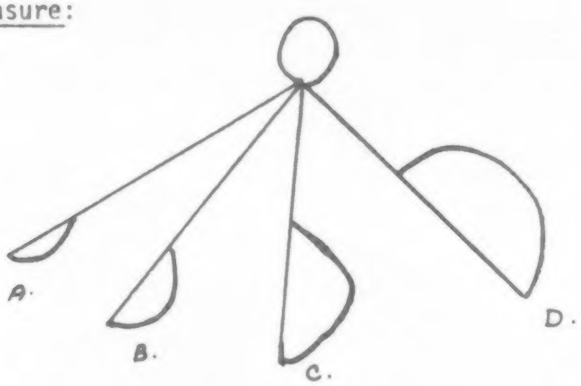
Answer ______________ lbs

4. Measuring Instruments and Proper Use:

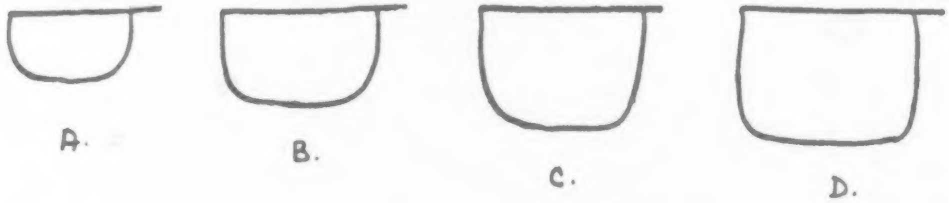
In the process of preparing a recipe to be served for regular or therapeutic diets, the use of various measuring instruments will be required. Assume that the recipe being prepared will be constant in quality and quantity. Without using instruments and using them properly this cannot be accomplished.

Below you will find drawings of the various measuring instruments you will be using from time to time. Your instructor will show you these measuring instruments and demonstrate their use. Following the demonstration, you are to (a) label the instruments with its proper name, (b) explain its proper use.

a. Dry Measure:



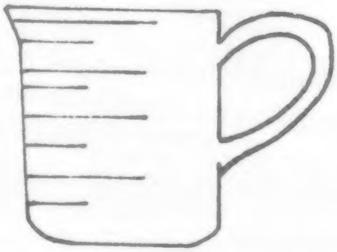
(1) ____________________



(2) ____________________

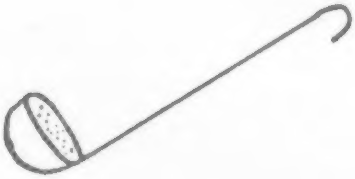
(3) This type of measuring cup would be used to measure ingredients such as ______________, ______________, or ______________.

161 b. Wet Measure:



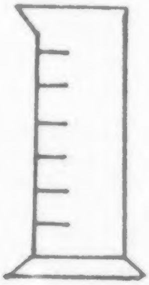
(1) ____________________

(2) This type of measuring cup would be used to measure ingredients such as _______________, _______________, or _______________.



(3) ____________________

(4) This type of measure would be used to serve _______________, _______________, and _______________.



(5) ____________________

(6) This type of measurement would be used in Air Force dining halls to measure _______________ _______________.

c. Other Methods:

(1) Water Displacement: Solid fats such as shortening, butter, margarine, etc can be measured in glass cups designed for liquid measurement by a measuring system called water displacement. This system would be used when measurement cups of the type used for dry ingredients were not available or when the fat was so hard that it could not be measured in dry ingredient measuring cups.

Your instructor will demonstrate this type of measurement.

(2) Ladles, spoons and scoops can also be used as a measure. The following charts give the measures of these kitchen items:

Ladles

Cup Size	Ounces
1/4 cup	2 oz
1/2 cup	4 oz
3/4 cup	6 oz
1 cup	8 oz
1 quart (No. 56 dipper)	32 oz

Scoops

Scoop Size (*)	Level Measure	Ounces
No. 6	2/3 C	5
No. 8	1/2 C	4
No. 10	3/8 C	3 1/4
No. 12	1/3 C	2 3/4
No. 16	1/4 C	2
No. 20	3 1/5 T	1 1/2
No. 24	2 2/3 T	1 1/3
No. 30	2 1/5 T	1
No. 40	1 3/5 T	0.8

(*) Scoop number refers to the number of scoops PER QUART.

Spoons

Ordinary cooking spoon serves approximately 3 oz.

5. Parts, Operation, Use and Care of the Dietetic Gram Scale:

The Rotating Dial Dietetic Gram Scale (Figure 1) is a relatively expensive item. Before using it, learn how to use it properly. You will be using this scale to weigh meats and other foods when exact weight is necessary for restricted diets. You may also use it to weigh small quantities of ingredients for tube feedings.

Picking Up Scale - Grasp the scale securely by the body and carry it only by the body; stabilize the platform with the free hand. CAUTION: Do not carry a scale by its platform and do not let the platform bounce freely.

Total Weight - With the scale placed on a level surface, set the moveable dial until the zero (0) is directly beneath the end of the pointer. Any object placed on the platform now will be completely weighed in grams. CAUTION: Always operate on a level surface.

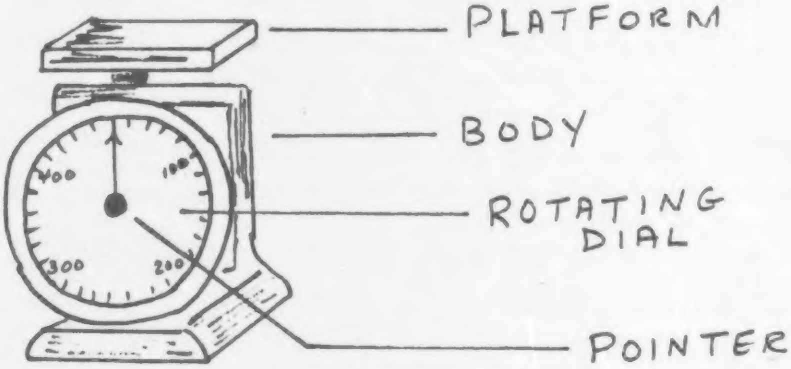


FIGURE 1 - Scale (front view)

Net Weight - Most of the time you use this scale you will want only net weight. Net weight is achieved by:

1. Placing an empty container on the platform.

2. Rotating the entire dial so that "0" is exactly under end of pointer.

3. Placing a portion of food in the container until the proper number of grams is registered.

Care of Scale - Any time food is spilled on the scale, wipe it clean immediately with a clean rag. Do not immerse either the scale or the platform in water to clean them. Store the scale in a place where it will be protected from excessive dust and food spill. CAUTION: Place articles to be weighed gently on platform and remove in a like manner. DO NOT force the pointer with your finger.

LABORATORY PROJECT: Operation of Platform Dietetic Scales

OBJECTIVES

When you have completed the following projects you will be able to properly weigh foods on a gram scale.

EQUIPMENT

	per student
Platform Dietetic Scales	1 per two students
Food Containers, Disposable	4 ea
Food Items to be Measured	4 ea

NOTE

1. Keep your work area clean. You are responsible for cleaning up your own work area.

2. As you weigh each ingredient, be aware of the differences in volume of each ingredient as well as how many grams of it you are weighing. For example, does 50 grams of flour have the same volume as 50 grams of rice?

PROJECT I

1. Students working in pairs, will be given the ingredients listed and each student will weigh the items to the weight specified. After completion, your work will be checked by the instructor.

Item	Weight
a. Sugar	140 grams
b. Flour	36 grams
c. Beans	156 grams
d. Rice	87 grams

PROJECT II

1. Food items of unknown weight will be provided by the instructor.

2. Weigh the unknown quantities and enter the weight below. The instructor will check your results after you have finished weighing each item.

Unknown	Weight
a. Rice	________
b. Beans	________
c. Sugar	________
d. Flour	________
e. Salt	________

READING ASSIGNMENT

AFM 160-8, Tables 1 A-8 (pg A1-52), 1 A-9 (pg A1-53) and 1A-10 (pg A1-53).

QUESTIONS AND PROBLEMS

1. Define Metric System:

2. Define Meter:

3. Define Liter:

4. Define Gram:

5. Abbreviate the following terms:

Kilogram ______________

Liter ______________

Gram ______________

Milligram ______________

Teaspoon ______________

Cup ______________

Pint ______________

Quart ______________

Ounce ______________

Tablespoon ______________

Pound ______________

Milliliter ______________

Cubic centimeter ______

6. Convert the following weights and measures:

1/2 C = ______________ T

1 T = ______________ ozs

150# = ______________ kgs

92 kg = ______________ lbs

3 oz = ______________ gms

480 gms = ______________ ozs

1/4 C = ______________ ozs

3/4 C = ______________ gms

16 lbs = ______________ gms

220 lbs = ______________ kgs

14 ozs = ______________ gms

85 gms = ______________ ozs

SUPPLEMENTAL INFORMATION

The remainder of this Study Guide contains tables with the quantities of the measures in addition to stating equivalents. This information makes it possible to calculate either system of measure and weight. You are not expected to memorize this information, but it is included with the intention that it will be useful to you if and when the U. S. converts to the metric system.

Approximate equivalents of metric measurements:

Length:	1 millimeter	=	.04 of an inch
	1 meter	=	3.3 feet or 1.1 yards
	1 kilometer	=	5/8 of a mile
Area:	1 square meter	=	1.2 square yards
	1 hectare	=	2.5 acres
Weight:	1 gram	=	.035 of an ounce
	1 kilogram	=	2.2 pounds
	1 metric ton	=	2,205 pounds
Volume:	1 milliliter	=	1/5 of a teaspoon
	1 liter	=	4.2 cups or 1.057 quarts
Power:	1 kilowatt	=	1.3 horsepower

LEVEL MEASURES AND WEIGHTS

60 drops	=	1 teaspoon 5 cc 5 grams
4 saltspoons	=	1 teaspoon 5 grams
3 teaspoons	=	1 tablespoon 15 cc 15 grams
1 dessert spoon	=	10 cc
2 tablespoons	=	30 cc 30 grams 1 ounce (fluid)
4 tablespoons	=	1/4 cup 60 cc 60 grams
8 tablespoons	=	1/2 cup 120 cc 120 grams
16 tablespoons	=	1 cup 240 grams 250 ml or mil (fluid) 8 ounces (fluid) 1/2 pound
2 cups	=	1 pint 480 grams 500 ml or mil (fluid) 16 ounces (fluid) 1 pound
4 cups	=	2 pints 1 quart 1000 or 960 cc 1000 ml or mil (fluid) 1 kilogram 2.2 pounds
4 quarts	=	1 gallon
8 quarts	=	1 peck
2 gallons	=	1 peck
4 pecks	=	1 bushel
8 gallons	=	1 bushel

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HOUSEHOLD MEASUREMENT EQUIVALENTS IN GRAMS

For easy computing purposes, the cubic centimeter (cc) is considered equivalent to 1 gram:

1 cc = 1 gram

For easy computing purposes, one ounce equals 30 grams or 30 cubic centimeters.

1 quart	=	960 grams
1 pint	=	480 grams
1 cup	=	240 grams
1/2 cup	=	120 grams
1 soup cup	=	120 grams
1 glass (8 ounces)	=	240 grams
1/2 glass (4 ounces)	=	120 grams
1 orange juice glass	=	100 to 120 grams
1 tablespoon	=	15 grams
1 teaspoon	=	5 grams

COMPARISON OF AVOIRDUPOIS AND METRIC WEIGHTS

Ounces to Grams			Grams to Ounces		
1	=	28.35	1	=	0.035
2	=	56.70	2	=	0.07
3	=	85.05	3	=	0.11
4	=	113.40	4	=	0.14
5	=	141.75	5	=	0.18
6	=	170.10	6	=	0.21
7	=	198.45	7	=	0.25
8	=	226.80	8	=	0.28
9	=	255.15	9	=	0.32

Pounds to Kilograms			Kilograms to Pounds		
1	=	0.454	1	=	2.205
2	=	0.91	2	=	4.41
3	=	1.36	3	=	6.61
4	=	1.81	4	=	8.82
5	=	2.27	5	=	11.02
6	=	2.72	6	=	13.23
7	=	3.18	7	=	15.43
8	=	3.63	8	=	17.64
9	=	4.08	9	=	19.84

COMPARISON OF UNITED STATES AND METRIC LIQUID MEASURE

Ounces (Fluid) to Milliliters	Milliliters to Ounces (Fluid)
1 = 29.573	1 = 0.034
2 = 59.15	2 = 0.07
3 = 88.72	3 = 0.10
4 = 118.30	4 = 0.14
5 = 147.87	5 = 0.17
6 = 177.44	6 = 0.20
7 = 207.02	7 = 0.24
8 = 236.59	8 = 0.27
9 = 266.16	9 = 0.31

Quarts to Liters	Liters to Quarts
1 = 0.946	1 = 1.057
2 = 1.89	2 = 2.11
3 = 2.84	3 = 3.17
4 = 3.79	4 = 4.23
5 = 4.73	5 = 5.28
6 = 5.68	6 = 6.34
7 = 6.62	7 = 7.40
8 = 7.57	8 = 8.45
9 = 8.52	9 = 9.51

Gallons to Liters	Liters to Gallons
1 = 3.785	1 = 0.264
2 = 7.57	2 = 0.53
3 = 11.36	3 = 0.79
4 = 15.14	4 = 1.06
5 = 18.93	5 = 1.32
6 = 22.71	6 = 1.59
7 = 26.50	7 = 1.85
8 = 30.28	8 = 2.11
9 = 34.07	9 = 2.38

It is helpful to know the yield of certain quantities of food. You may find the following table of weights and measures useful.

Butter is solidly packed standard eight ounce cups:

1 pound = 2 cups
2 cups = 400 grams
1 cup = 200 grams
1/2 cup = 100 grams
1/4 cup = 50 grams

Granulated sugar:

2 cups = 1 pound
1 cup = 190 grams
2/3 cup = 125 grams
1/2 cup = 95 grams
1/4 cup = 50 grams

Confectioner's sugar:

2 2/3 cups = 1 pound

Brown sugar:

2 2/3 cups = 1 pound

All-purpose flour:

4 cups, sifted = 1 pound
1 cup = 140 grams
2/3 cup = 100 grams
1/2 cup = 70 grams
1/4 cup = 35 grams

Cake flour:

4 1/2 cups, sifted = 1 pound

Square of chocolate:

1 square = 1 ounce
1 ounce = 1/4 cup cocoa

Eggs:

8 each, average = 1 cup

Egg Whites:

8-10 = 1 cup

Egg Yolks:

12-14 = 1 cup

MEASURES OF VOLUME

1 bushel = 4 pecks
1 peck = 8 quarts
1 gallon = 4 quarts
1 quart = 2 pints (946.4 milliliters)
1 pint = 2 cups
1 cup = 16 tablespoons (2 gills, 8 fluid ounces, 237 milliliters)
1 tablespoon = 3 teaspoons (1/2 fluid ounce)
1 teaspoon = 5 milliliters
1 liter =1000 milliliters (1.06 quarts)

MEASURES OF WEIGHT

1 gram = 0.035 ounce
1 kilogram = 2.21 pounds
1 ounce = 28.35 grams
1 pound = 453.6 grams

AVOIRDUPOIS MEASURE
(To Weigh or Measure Heavy
and Coarse Articles)

Dry Measure

16 drams (drs) = 1 ounce (oz)
16 ounces (oz) = 1 pound (lb)
7000 grains (gr) = 1 pound
25 pounds (lb) = 1 quarter (qr)
4 quarters (qr) = 100 weight (cwt)
20 hundredweight (cwt) = 1 ton (T)

Liquid Measure

2 pints = 1 quart (57 3/4 cubic inches)
4 quarts = 1 gallon (231 cubic inches)
8 gallon = 1 bushel (2150.42 cubic inches; a cylinder which measures 18 1/2 inches [diameter] by 8 inches [deep])

2 cups = 1/2 liter
1 cup = 1/4 liter
3/4 cup = 1/6 liter
2/3 cup = 1/7 liter
1/2 cup = 1/8 liter
1/3 cup = 1/15 liter
1/4 cup = 1/16 liter

Converting Spice Measurement to Grams

Spice	Grams Per Teaspoon	Spice	Grams Per Teaspoon
Allspice, ground	1.7	Marjoram, leaves	0.6
Anise seed	2.3	Mint flakes	0.6
Basil leaves	0.6	Mustard, powdered	1.5
Bay leaves, crumbled (6 small)	0.6	Mustard, seed	3.2
Caraway seed	2.4	Nutmeg, whole (1 medium)	4.4
Cardamon seed (12)	3.2	Nutmeg, ground	1.9
Cardamon, ground	1.8	Onion powder	2.1
Celery seed	2.0	Oregano leaves	0.6
Celery flakes	0.6	Paprika	1.9
Cinnamon, ground	1.7	Parsley flakes	0.4
Cloves, ground	1.7	Pepper, black, ground	2.3
Cloves, whole (28)	2.0	Pepper, black, whole	3.5
Coriander seed	1.5	Pepper, red, ground	2.1
Cumin, ground	1.6	Pepper, red, whole (1 piece)	0.4
Curry powder	2.0	Pepper, white, ground	2.2
Dill seed	2.1	Pepper, white, whole	4.1
Fennel seed	1.9	Poppy seed	2.7
Fenugreek, seed	3.7	Rosemary leaves	1.2
Fenugreek, ground	1.9	Saffron	0.7
Garlic powder	1.5	Sage, rubbed	0.9
Ginger, whole (1 piece)	2.0	Savory, ground	1.4
Ginger, ground	1.6	Sesame seed	2.9
Mace, whole	1.6	Thyme, leaves	0.9
Mace, ground	1.8	Thyme, ground	1.5
Marjoram, ground	1.2	Turmeric, ground	1.9

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION
(TERMINOLOGY AND ABBREVIATIONS)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

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Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-1b
September 1975

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OBJECTIVES

Upon completion of this study guide and workbook, you will have accomplished the following objectives:

1. Discuss the purpose of having medical and dietetic terminology.

2. Describe sources for finding the meaning of unfamiliar terminology.

3. Complete a programmed text on the use of terminology and abbreviations.

4. Define commonly used medical and dietetic terms and abbreviations.

INTRODUCTION

This SW is an introduction to medical terminology and medical and dietetic abbreviations. It is not a complete dictionary of medical terms, but it does contain a selection of the most commonly used medical prefixes, roots, and suffixes. With this as a basis, you will be able to understand the more commonly used medical terms you encounter in the field of health care.

INFORMATION

As a member of the medical team it is important for you to have an understanding of terminology and abbreviations used in the medical field. You will see medical terminology and abbreviations on diet prescriptions and will come into contact with them in your conversations with other medical personnel. This is necessary because medicine, like other professions, has its own working language.

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1. Purpose of Medical and Dietetic Terminology

Medical terminology was not designed to confuse laymen. Instead, it was designed to provide uniformity. In early medicine there was little uniformity; consequently, confusion resulted when different words were used to describe the same anatomical structure or medical condition.

Eventually, Greek and Latin words were adopted and certain principles of medical terminology evolved. These principles are:

1. Each part should have one name only.
2. The names should be as short and simple as possible.
3. Related structures should have similar names.
4. Adjectives, with few exceptions, should be in opposing pairs.

MEDICAL TERMINOLOGY

Medical terminology exists only for the field of medicine. It is used to describe the human body, such as:

1. Its functions
2. Its normal state
3. Its abnormal state
4. Diseases or injuries which may affect it

LEARNING MEDICAL TERMINOLOGY

Medical terminology and the medical vocabulary are extensive. Complete familiarity with it is necessary to insure against errors in interpretation and use. It may be possible to "pick up" medical words over a long period of association with physicians and other hospital personnel, but a more rapid acquaintance may be obtained by memorizing those which are frequently encountered. How do you begin to learn medical words? You learn them by an analysis of the words themselves.

Each medical term contains a:

ROOT or STEM - this forms the body or basis of the term created. It is used to describe and locate injuries, treatment and diagnosis.

PREFIX - a prefix is a syllable, a group of syllables, or a word placed before the stem to alter its meaning. Prefixes may explain location, number, direction or position.

SUFFIX - a suffix may be a letter or a syllable at the end of a word that gives additional meaning to and clarifies a word stem. Its function is much the same as a prefix, that is, it may explain location, number, direction or position.

When you hear a term, or see it, break it down - analyze it- find the meaning of the root, prefix and suffix and combine them. Then you will find it easy, while learning the meaning, to learn the correct spelling also. The misunderstanding or leaving out of a single letter may completely change the meaning. Also, some words sound alike but have different meanings. As an example:

Psychosis = a severe mental disorder
Sycosis = inflammation of hair follicle

Care must be taken, however, to insure that the meaning of the stems, prefixes and suffixes are fully understood. The misinterpretation of just a single letter may completely alter the meaning or even reverse it.

Example:	Prefixes	Root or Stem	
a.	AB	duct	= to lead away
b.	AD	duct	= to draw toward

The following chart shows how words are broken down to the prefix, stem and suffix of the word to give its common meaning:

Whole Word	Prefix	Stem	Suffix	Common Meaning
Supervisor	Super (over)	Vit (life)	or (one who)	An overseer
Transportation	Trans (across)	Port (carry)	ation (act or state)	act of carrying or moving
Dislocation	Dis (away or apart from)	Loc (a place)	ation (act or state)	act of putting out of place
Hyperglycemia	Hyper (excess)	Glyc (glucose)	emia (blood)	excess glucose in the blood

Learn to pronounce medical terms correctly. Speak all syllables of the word distinctly; listen to the doctors; use the self-pronouncing dictionary; try new words on your friends.

Mispronunciation is easy since many words have similar sounds and only a slight difference in spelling, but a big difference in meaning. Some medical terms are:

MYOLYSIS - muscle destruction
MYOSITIS - inflammation of muscle
MYELITIS - inflammation of bone marrow or spinal cord
MYOCYTE - muscular tissue cell
MYELOCYTE - cell in bone marrow

You can see such words as these can easily be confused and require extra care in learning. So, above all, when using medical terms, pronounce clearly, do not slur. You will avoid confusion. Listen to words and practice them.

Pronunciation will be much easier if you remember these shortcuts:

1. Ch is sometimes pronounced like k. Example: cholecystitis, chronic

2. Ps is pronounced like s. Example: psychosis, pseudonym

3. Pn is pronounced with only the n sound. Example: pneumonia

4. C and g are given the soft sound of s and j, respectively, before e, i, and y in words of both Greek and Latin origin. Example: cyst, cytoplasm, genesis, gelatin

5. C and g have a harsh sound before other letters. Example: cardiac, cryotherapy, gastric, gland

6. Ae and oe are pronounced ee. Example: alae, casease, coelom

7. I at the end of a word (to form a plural) is pronounced eye. Example: glomeruli, fungi

8. E and es, when forming the final letters or letter of a word, are often pronounced as separate syllables. Example: rete (reetee); nares (nayreez)

2. Sources for Finding the Meaning of Unfamiliar Terminology

In the event you are not able to define a medical term in a text or on a diet order, there are several sources that you may consult to find the correct definition or explanation. These sources will be in your medical library, department library or in some of your texts.

Dictionary - Includes all of the words in the English vocabulary.

Medical Dictionary - Lists all medical, scientific and technical words pertaining to the field of medicine.

Glossary - A partial dictionary of words and terms used in a particular text. It contains foreign, difficult and technical terms with explanations and/or translations.

Index - A table, list, or file, usually arranged alphabetically in the back of a book for facilitating reference to topics, names or objects in a book together with page numbers.

Table of Contents - A compact, systematic list of chapters and subjects included in each chapter. Usually found in the front of a book.

Common Roots:

You have already learned that each medical term contains a root or stem, which is the body or basis of the term created, and that these are used to describe and locate injuries, treatment and diagnosis. One or more may be used together and are at times used in a combining form as a prefix.

Here are some commonly used roots and combining forms.

MEDICAL ROOT	COMMON WORD	COMBINING FORM	EXAMPLE
adeno	gland	aden-	adenectomy
arthro	joint	arthr-	arthritis
brachi	arm	brachi-	abrachial
crani	skull	crani-	cranium
cardi	heart	card-, cardi-	cardialgia
chole	bile	chole-	cholecystitis
cyst	bladder	cyst-	cystitis
cholecyst	gall bladder	cholecyst-	cholecystectomy
derm	skin	derm-	dermatology
enter	intestines	enter-	enterology
gastr	stomach	gastro-	gastrectomy
hem	blood	hemo-	hemostasis
hepat	liver	hepat-	hepatitis
my	muscle	myo-	myocardial
nas	nose	nas-	nasal
nephr	kidney	nephr-	nephritis
ren	kidney	ren-	intrarenal
neur	nerve	neur-	neurocyte
ost	bone	ost-	osteomyelitis
oss	bone	oss-	ossiphone
ot	ear	ot-	parotid
aur	throat	aur	aurinasal
pharyng	throat	pharyng	pharyngeal
phleb	vein	phleb-	phlebitis
pneumo, pulmo	lungs	pneum, pulmon-	pulmonary
stom	mouth	stomat-	stomatal

Common Prefixes:

The "prefix" is a syllable or group of syllables joined to the beginning of a word to alter its meaning. For example: the prefix "anti" means "against". The term "sepsis" means "poisoning which is caused by the product of a putrefactive process". When the (prefix) "anti" is added to the (root) term to form antisepsis the word means "the prevention of sepsis (poisoning) by the inhibition of causative organisms". Another example: The term "bacterial" means "pertaining to or caused by bacteria". When the (prefix) "anti" is added to the (root) term to form antibacterial, the word now means "that which destroys bacteria or supresses their growth".

Listed below are frequently used medical prefixes and their meanings.

Medical Prefix	Meaning	Medical Prefix	Meaning
a--	without or not	cephal--	head
ab--	from, off, away from	cept--	take
		chol--	bile
ad--	to, next to	chondr--	cartilage
aden--	gland	circum--	about
adip--	fat	clas--	break
aer--	air	contra--	against
alb--	white	corti--	bark, rind
alg--	pain	cost--	rib
all--	other, different	crani--	skull
alve--	trough, channel, cavity	cut--	skin
		cyst--	bladder
an--	without or not	cyt--	cell
ana--	up, positive	derm (at)--	skin
angi--	vessel	di--	two
ante--	before	digit--	finger or toe
anti--	against, counter	dis--	apart, away from
arter--	elevator (?), artery	duct--	lead, conduct
		dys--	bad, improper
arthr--	joint	e--	out from
aur--	ear	ect--	outside
bi--	two	em--	blood
bio--	life	endo--	inside
bil--	bile	enter--	intestine
blast--	bud, growing thing in early stages	epi--	upon, after, in addition
brachi--	arm	erythr--	red
bronch--	windpipe	ex--	out of
capit--	head	extra--	outside of, beyond
cardi--	heart	funct--	perform, serve
cata--	down, negative	gastr--	stomach
cell--	room	gloss--	tongue

Medical Prefix	Meaning
glyc--	sweet
gyn--	woman, wife
hem (at)--	blood
hepat--	liver
horm--	impulse
hydr--	water
hyper--	above, beyond extreme
hypn--	sleep
hypo--	under, below
hyster--	womb
ili--	lower abdomen, intestines
in--	negative prefix
infra--	beneath
inter--	among, between
intra--	inside
is--	equal
jejun--	hungry, not partaking of food
kilo--	one thousand, indicates multiple metric system
labi--	lip
lact--	milk
laryng--	windpipe
later--	side
leuc--	white
leuk--	white
lip--	fat
mal--	bad, abnormal
mega--	great, large
men--	month
meta--	after, beyond, accompanying
metr--(1)	measure
metr--(2)	womb
micr--	small
my--	muscle
myel--	marrow or spinal cord
narc--	numbness
nas--	nose
ne--	new, young
nephr--	kidney
neur--	nerve
ocul--	eye

Medical Prefix	Meaning
olig--	few, small
oo--	egg
ophthalm--	eye
or--	mouth
orchi--	testicle
oss--	bone
ost--	bone
ot--	ear
ov--	egg
para--	beside, beyond
path--	sickness
peps--	digest
pept--	digest
peri--	around
pharmac--	drug
pharyng--	throat
phleb--	vein
phob--	fear, dread of
phot--	light
pil--	hair
pleur--	rib, side
pneum--	breath, air
pod--	foot
poly--	much, many
polio--	gray
posit--	put, place
post--	behind in time or place
pre--	before in time or place
pro--	before in time or place
pub--	adult
pulmo (n)--	lung
py--	pus
pyelo--	pelvis of kidney
quadr--	four
re--	back, again
ren--	kidneys
retro--	backwards
rhin--	nose
scler--	hard
scop--	look at, observe
sect--	cut
semi--	half
sens--	perceive, feel
somat--	body

Medical Prefix	Meaning	Medical Prefix	Meaning
sperm (at)--	seed	test--	testicle
sta--	make stand, stop	therap--	treatment
stal--	send	therm--	heat
stom (at)--	mouth, orifice	thorac--	chest
strict--	draw tight, compress, cause pain	thromb--	lump, clot
		tox--	poison
struct--	pile up (against)	tri--	three
sub--	under, below	troph--	nurture
tel--	end	tuber--	swelling node
tele--	at a distance	un--	one
ten--	tight stretched band	vagin--	sheath
		vas--	vessel
tens--	stretch		

Common Suffixes:

A suffix is a letter or syllable at the end of a word and its function is much the same as the prefix. It alters the meaning of the word or indicates the intended part of speech.

-algia	pain
-cele	tumor, hernia
-clysis	a slow injection of a large amount of fluid
-ectomy	removal of
-emia	blood
-esthesia	sensation
-itis	inflammation
-lith	stone, calculus
-logy	study of
-manometer	used to measure pressure
-meter	a measure
-oma	morbid condition, tumor
-opia	vision
-osis	condition
-pathy	disease
-pexy	to fasten
-phobia	fear or dread
-plasty	to form or build up
-plegia	paralysis
-pnea	breathing
-ptosis	falling
-rraphy	repair
-rrhea	flow, discharge
-scope	used to examine by looking into or by hearing
-scopy	visual examination, looking into
-stasis	standing still

-stomy	creation of an opening
-stenosis	narrowing
-therapy	treatment
-thermy	heat
-tomy	cutting into
-trophic, trophy	growth
-uric, urea	urine

DIETETIC TERMINOLOGY AND ABBREVIATIONS

Abbreviations like words, are formed and established because of necessity to save time and writing. There are a number of abbreviations and dietetic terminology frequently used for this purpose by medical food service personnel. They are important to you on the job. They offer many shortcuts in writing and speaking and indicate a high degree of knowledge. For instance, we can write "H. S." instead of "hour of sleep" or we can write "Na/R" instead of "prepared without salt".

Always use accepted abbreviations. Do not make up your own. Some of the accepted abbreviations commonly used in medical food service are:

ADA	American Dietetic Association	qh	every hour
b.m.r.	basal metabolic rate	q2h	every 2 hours
DB or diab	diabetic	q3h	every 3 hours
e.g.	for example	qs	as much as necessary
ext.	extract	a	before
p.	after	a.c.	before meals
p.o.	by mouth	p.c.	after meals
NPO	nothing by mouth	Ad lib	as desired
prn	as necessary	bid or 2id	twice a day
HS	Hour of Sleep or Bedtime	tid	3 times a day
h, hor, hs	hour	qid	4 times a day
q	every	Kg	Kilogram
qd	every day	gm	Gram

G.I.	gastrointestinal
gr	grain
gtt	one drop
cc	Cubic Centimeter
ml	milliliter
mg	milligram
o.d.	daily
o.m.	every day
o.n.	every night
IU	International Unit
IV	Intravenously
IM	Intramuscular
fdg	feeding
fl	fluid
liq	liquid
str	strained
Ex or Exch	Food Exchange
Fort	Fortified
gr	ground
lg	large
W/ or $\overline{c}$	with
W/O or $\overline{s}$	without
Cal/R	calorie,restricted

X	times
Sub	substitute
SC	soft cooked
HC	hard cooked
A.P.	As Purchased
E.P.	Edible Portion
Bu	buttered
pt	pint
Qt	quart
C	cup
Oz	ounce
lb or #	pound
tsp or t	teaspoon
tbsp or T	tablespoon
Jc or Ju	juice
Sl	slice
stat	at once
med	medium
wh	whole
T & A	Tonsillectomy & Adenoidectomy
TA	Table of Allowances
CHO	carbohydrate
Pro	protein
K	potassium

P	Phosphorus	Chol	cholesterol
Ca	Calcium	Fat/C or F/C	fat controlled
Fe	Iron		
I	Iodine	Fat/R or F/R	prepared without Fat
		Na/R or SF	prepared without salt

SYMBOLS

−	negative	↓	decrease
+	positive	↑	increase
±	positive or negative; plus or minus	>	greater than
♂	male	<	less than
♀	female		

3. Programmed Text

PART I

PREFIXES, ROOTS AND SUFFIXES OF MEDICAL TERMINOLOGY

This programmed text is an introduction to medical terminology. It is not a magical device that will automatically teach you anything. You can only learn medical terminology by applying yourself to the program.

1. Medical terminology is made up from Latin and Greek roots, suffixes and prefixes. Learning these roots, suffixes and prefixes will enable you to understand and form many medical words. Many medical words are formed

using ______________________ and ______________ __________,

______________________ and ________________.

2. (Latin, Greek roots, suffixes, prefixes) A prefix is a word used to modify the meaning of the word to which it is attached. It is always placed before the word it modifies. For example, prepaid means paid before.

The prefix added to paid in this example is ____________________.

3. (pre) The prefix meaning without is a or an. Which word or words below means without something.

a.	abrachial	c.	abacterial
b.	anemia	d.	diplogen

4. (a, b, c) Abrachial, anemia, abacterial all have a prefix which means ________________.

5. (without) The prefix a is used when the root or suffix begins with a consonant. The prefix an is used when the root or suffix begins with a vowel. By adding the proper prefix, change each of the following words into a new form that means without.

a.	_____typical	d.	_____oxia
b.	_____symmetrical	e.	_____otic
c.	_____omaly	f.	_____febrile

6. (1-a, 2-a, 3-an, 4-an, 5-an, 6-a) Which word below could mean without arms?

a. gelatinase b. abrachial

7. (b) Which word below could mean without blood.

a. anemia b. napex

8. (a) The prefix ad means to or at. Drawing toward the mid-line is

a. abduction b. adduction

9. (b) When one substance sticks to another substance, it is said to

a. adhere b. abort

10. (a) At the mouth would be

a. aboral b. adoral

11. (b) The prefix meaning without is

a. ad b. a c. an

12. (b,c) The prefix meaning to or at is ______________.

a. ad b. a c. an

13. (a) The prefix meaning before is ante. For each of the following, fill in the word that gives the meaning of the prefix.

a. antenatal ______birth

b. anesthesia ______sense of touch or pain

c. antecubital ______forearm

d. aphagia ______power of swallowing

e. adrenal ______kidney

f. apnea ______breathing

g. anoxia ______oxygen

h. adneural ______nerve

14. (A-before, B-without, c-before, d-without, e-to the (at the), f-without, g-without, h-to the (at the)) Before the arm (forearm) is

a. abrachial
b. anbrachial
c. antebrachial
d. adbrachial

15. (c) Antefebrile would mean

a. after the onset of fever
b. before the onset of fever

16. (b) Epi, inter and intra are three words with similar meanings. They are sometimes difficult to separate. Epi means on or upon, inter mean between, and intra means within. Upon the spine is

a. interspinal
b. intraspinal
c. epispinal

17. (c) Exo, and Extra mean outside, Exogenous would mean:

a. produced outside
b. produced within
c. produced upon

18. (a) Epicostal means

a. without a rib
b. upon a rib
c. between the ribs

19. (b) Inter and intra are the ones most easily mixed up. Inter and enter sound alike; when you enter a gate, you walk between the posts. Between the ribs is

a. intercostal
b. intracostal
c. epicostal

20. (a) Upon the skin is ____________________ while between two or more cartilages would be ____________________.

a. interchondrol   b. epidermal

21. (b, a) Intra means within. Within the skull is ____________________ and upon the skull is ____________________.

a. epicranium   b. intracranial

22. (b, a) Fill the blanks with the correct prefix to match each meaning.

a. __________cardium - upon the heart

b. __________venous - within the vein

c. __________costal - upon the rib

d. __________cellular - between the cells

e. __________cellular - within the cells

f. __________muscular - between muscles

23. (a-epi, b-intra, c-epi, d-inter, e-intra, f-inter) Erythr/o means red. A common word is erythrocyte, meaning __________________ blood cell.

24. (red) The abbreviation RBC is frequently used for red blood cell. A red blood cell, then, may be either abbreviated RBC or written __________ cyte.

25. (erythro) Erythrocyte may be abbreviated ______________ or written out as __________________blood cell.

26. (RBC, red) Leuk/o and leuc/o mean white. A leukocyte is a __________ blood cell.

27. (white) An abbreviation, WBC, may also be used instead of the prefix-root combination. WBC or _____________ cyte means _____________ blood cell.

28. (leuko, white) White blood cell may be abbreviated as _____________ or written as __________________ cyte.

29. (WBC, leuko) You have seen that some prefixes end with the letter o as in leuk/o or erythr/o. Here is the rule for using such prefixes: Add the o when the root or suffix begins with a consonant; drop the o when the root or suffix begins with a vowel. Complete the words below by adding a or an where needed and by retaining or dropping the o in erythr/o and leuk/o.

a. leuk _____cyte   b. erythr ______emia   c. erythr ______cyte

d. (a)(an)emic   c. (a)(an)symmetrical   f. (a)(an) brachi

30. (a-leukocyte, b-erythremia, c-erythrocyte, d-anemic, e-asymmetrical, f-abrachi) Complete the words below using the prefixes you have learned.

a. ___________ costal - between the ribs

b. ___________ sexual - without sex

c. ___________ blast - a red forming cell

d. ___________ neural - upon the nerve

e. ___________ emia - white blood disease

f. ___________ cranial - within the skull

g. ___________ renal - to the kidney

h. ___________ emia - without blood

i. ___________ brachium - before the arm

31. (a-inter, b-a, c-erythro, d-epi, e-leuk, f-intra, g-ad, h-an, i-ante)

Intracranial and endocranial mean the same (inside or within). Inside the skull is __________________ or __________________.

a. intracranial   b. endocranial   c. epicranial

32. (a, b) Endoscopy means a visual examination

a. within   c. upon
b. inside   d. between

33. (a, b) Match the items in column A with the correct meaning in column B.

A	B
a. Intercostal __________	(1) upon the skin
b. Intracranial __________	(2) within the skull
c. Epidermis __________	(3) inside the heart
d. Endocardial __________	(4) between the ribs

NOTE TO STUDENT

Although Intra is Latin and Endo is Greek, both meaning within, Intra is usually used to mean within or among while Endo denotes inside or inner.

34. (a-(4), b-(2), c-(1), d-(3)) Peri means around, retro means behind. Around the heart is

a. retrocardial
b. pericardial

35. (b) Retronasal means

a. behind the nose
b. upon the nose
c. around the nose

36. (a) Perirectal means ______________ the rectum, while retro-ocular means ______________ the eye.

37. (around, behind) A country that is retrogressive may soon be ______________, (ahead, behind), a similar country that is progressive.

38. (behind) An inflammation around the brain is

a. retropharyngitis
b. periencephalitis
c. endocarditis

39. (b) Label the items "around" or "behind" as applicable.

a. retrorectal ______________
b. periapical ______________
c. peribronchial ______________
d. retrodural ______________

40. (a-behind, b-around, c-around, d-behind) Bi means two. Bicuspid means ______________ cusps.

41. (two) Section means to cut. Cutting into two parts would be ____________.

42. (bisection) The biceps brachii muscle has _________________ heads.

43. (two) Bio is a prefix meaning life. A study of life is

a. hematology c. biology
b. neurology

44. (c) Biogenous means

a. producing disease c. producing death
b. producing life

45. (b) An examination to determine if life is still present would be

a. endoscopy b. bioscopy

46. (b) Hem/o or hemat means blood. Hematology is a study of _____________.

47. (blood) Stasis means standing still. Blood that is standing still would be in a condition of ____________stasis.

48. (hemo) A hemocytoblast is a __________________ forming cell.

49. (blood) Hyper and hypo are two prefixes. Hyper means above or an excess; hypo, then, means the opposite, or

a. above or excess c. below or deficient
b. normal

50. (c) Hypertension describes a person who has

a. more tension than normal c. normal tension
b. less tension than normal

51. (a) A hypodermic needle is a needle that goes

a. above the skin b. below the skin

52. (b) Indicate the meaning of the following words by placing the letter "A" for above and "B" for below, after each word.

a. hyperacute b. hyperacid c. hypochondriac
d. hyperalgia e. hypomorph f. hypotension

53. (a-A, b-A, c-B, d-A, e-B, f-b) Sub is a prefix meaning under. Subcostal would mean ______________ the ribs.

54. (under) Glossal refers to the tongue. Under the tongue would be ________________.

55. (subglossal) Under the shoulder blade would be _________ scapular.

56. (sub) Pneum/o means air, breath or lung. Pneumonitis is an inflammation of the ______________________.

57. (lung) Pneumothorax means there is ______________ in the rib cage.

58. (air) Ectomy refers to the surgical removal of a part. Removal of a lung would be a _________________ ectomy.

59. (pneum) Listed below are medical words without their prefixes. Add the prefix to make each word mean what the lay term indicates.

a. _________ brachia - without arms
b. _________ renal - to the kidney
c. _________ gastric - upon the stomach
d. _________ costal - between the ribs
e. _________ cyte - white blood cell
f. _________ uria - without urine
g. _________ cranial - without the skull
h. _________ cardial - around the heart
i. _________ cervical - behind the cervix uteri
j. _________ cardial - inside the heart
k. _________ logy - a study of life
l. _________ section - cut in two
m. _________ logy - a study of blood
n. _________ tension - over tensed

o. ____________ dermic - beneath the skin

p. ____________ hepatic - under the liver

q. ____________ onitis - inflammation of the lung

r. ____________ cyte - red blood cell

s. ____________ partum - before childbirth

Check the confirmation. Any words you missed or had difficulty with, review before going on.

60. (a-a, b-ad, c-epi, d-inter, e-leuko, f-an, g-a, h-peri, i-retro, j-endo, k-bio, l-bi, m-hemato, n-hyper, o-hypo, p-sub, q-pneum, r-erythro, s-ante) Periosteum means

a. behind the bone
b. upon the bone
c. around the bone
d. within the bone

61. (c) Within the cartilage is

a. perichondrial
b. interchondral
c. intrachondrial

62. (c) Epicardial means

a. within the heart
b. upon the heart
c. around the heart

63. (b) Pericardial means

a. around the heart
b. upon the heart
c. inside the heart

64. (a) Inside the heart is ________________ or ________________.

a. intracardial
b. pericardial
c. epicardial
d. endocardial

65. (a, d) Hypercardial means

a. below the heart
b. above the heart
c. within the heart

66. (b) Cost is the medical term for rib. Upon the rib is

a. epicostal
b. intracostal

67. (a) Between the ribs is

a. intercostal   b. intracostal

68. (a) A form referring to the inner surface of the ribs would be

a. epicostal   b. intercostal   c. intracostal

69. (c) Cyte is the suffix meaning cell. The most commonly used words employing "cyte" are "leukocyte" and "erythrocyte". These words mean (select two)

a. bone cells   c. white cells
b. red cells   d. muscle cells

70. (c,b) A red blood cell having no hemoglobin is called a/an

a. alymphocyte   b. anerythrocyte

71. (b) Intraleukocytic means

a. upon a leukocyte   c. within a leukocyte
b. inside a leukocyte   d. below a leukocyte

72. (b, c) Myo is the medical term for muscle. Myocardium is a/an

a. arm muscle   c. heart muscle
b. neck muscle   d. head muscle

73. (c) A cell of the muscular tissue is called

a. myocardium   b. myocyte

74. (b) Ren and nephr both mean kidney. Nephr is used most often. Which of the words below pertain to the kidney or heart?

both _________, a. _________, b. ____________, neither _________

a. nephrocardiac   b. renicardiac

75. (both) The most common form for kidney is

a. ren   b. nephr

76. (b) Intrarenal means

a. within the kidney   c. upon the kidney
b. inside the kidney

77, (a-b) Around the kidney is

a. peribrachial
b. pericostal
c. perirenal
d. pericardial

78. (c) Endonephritis, renal, intrarenal, perirenal, nephrectomy. Looking at the words above, select the correct statement or statements that tell how and when ren and nephr are used.

a. Ren is always used as a word ending.

b. Nephr is always used as a word beginning.

c. Ren is never used as a word beginning.

d. Nephr is never used as a word ending.

e. Ren is usually used as a word ending with the suffix al.

79. (d, e) Oste is the medical term for bone. Removing a bone is accomplished through a/an

a. cardiectomy
b. pneumonectomy
c. nephrectomy
d. ostectomy

80. (d) Ostealgia would be a

a. headache
b. pain in the arm
c. pain in the bone
d. pain in the neck

81. (c) Osteopathy is a

a. disease of the skin
b. disease of the arm
c. disease of the bone

82. (c) Neuro is the medical term for nerve. Ben Casey is a neurosurgeon; this means he operates on

a. the arm
b. the kidneys
c. the heart
d. the nerves

83. (d) Within a nerve is

a. subneural
b. adneural
c. endoneural
d. epineural

84. (c) Subneural means

a. around an arm
b. upon a nerve
c. upon an arm
d. under a nerve

85. (d) Thrombo is the medical term for clot. A thrombocyte is a blood platelet or

a. red cell
b. white cell
c. clotting cell

86. (c) A blood clot within the heart is

a. thrombo-endarteritis
b. thrombocytopenia
c. thrombo-embolism
d. thrombo-endocarditis

87. (d) Producing a clot is

a. thrombogenic
b. thrombocyte

88. (a) You have learned many words. To help you retain this knowledge the next few frames consist of a review. Column A contains medical terminology and Column B contains lay terminology. MATCH THE MEDICAL TERM WITH CORRECT LAY TERM.

A	B
a. abrachial ________	(1) situated upon a rib
b. anerythrocyte ________	(2) red blood cell
c. adneural ________	(3) within the heart
d. epicostal ________	(4) white blood cell
e. erythrocyte ________	(5) around the kidney
f. interrenal ________	(6) without red cells
g. leukocyte ________	(7) to a nerve
h. intracardiac ________	(8) behind the heart
i. perinephric ________	(9) without arms
j. retrocardiac ________	(10) between the kidney

89. (a-(9), b-(6), c-(7), d-(1), e-(2), f-(10), g-(4), h-(3), i-(5), j-(8)) Continue as in the preceding frame.

A		B
a. endocardial	______	(1) destructive to living organisms
b. biocidal	______	(2) excess in the number of white blood cells
c. hematology	______	(3) under the rib
d. hyperleukocytosis	______	(4) pertaining to the heart and lungs
e. hypoleukocytosis	______	(5) inside the heart
f. subcostal	______	(6) a nerve cell
g. pneumocardial	______	(7) deficiency of white blood cells
h. neurocyte	______	(8) a blood platelet (clotting cell)
i. thrombocyte	______	(9) a study of blood

90. (a-(5), b-(1), c-(9), d-(2), e-(7), f-(3), g-(4), h-(6), i-(8)) Hepat is a root meaning liver. A patient with an inflamed liver would have

a. neuritis
b. hepatitis
c. carditis
d. nephritis

91. (b) Any disease of the liver would be

a. hepatopathy
b. osteopathy

92. (a) A removal of a portion of the liver would require a

a. hepatopathy
b. cardiectomy
c. hepatectomy
d. ostectomy

93. (c) Cephal means head. Medically speaking, if you had a headache you would have

a. neuralgia
b. cardialgia
c. cephalalgia
d. myalgia

94. (c) Any disease of the head would be classified as

a. cephalopathy
b. hepatitis
c. neurology
d. osteopathy

95. (a) A headless body would be

a. bicephalus
b. acephalia

96. (b) Chondri is a root meaning cartilage. Under the cartilage is

a. hypochondrium
b. **hypochondroplasia**
c. intrachondrial
d. subchondral

97. (d) A cartilage cell is a

a. chondralgia
b. chondrocyte
c. chondroblast
d. chondritis

98. (b) Cartilage is formed through a process called

a. myogenesis
b. osteogenesis
c. neurogenesis
d. chondrogenesis

99. (d) The root form for stomach is gastr. An inflammation of the stomach is

a. nephritis
b. gastritis
c. cephalitis
d. neuritis

100. (b) The process of removing all or part of the stomach would be called:

a. lobectomy
b. pneumectomy
c. gastrectomy
d. gastrotomy

101. (c) A word which means pertaining to the heart and stomach is

a. gastroacephalus
b. gastrocardiac
c. gastrohepatic
d. gastronephritis

102. (b) Which word means an inflammation of the stomach and kidney?

a. gastrointestinal
b. gastrologist
c. gastronephritis
d. gastrohepatitis

103. (c) Arter means artery. Arteriorenal would be an ______________

of the ________________.

104. (artery, kidney) Arteritis would be an inflammation of the

________________________.

105. (arteries) Stenosis means narrowing. Arteriostenosis means a narrowing of the ____________________.

106. (arteries) Crani means skull. A craniectomy would be a surgical

____________________ of the ______________.

107. (removal, skull) Crani or cranium means ________________.

108. (skull) Pathy means disease. A craniopathy would be a _____________

of the ____________________.

109. (disease, skull) Derma and dermat/o means skin; neur/o means nerve; logy means a study of.

Dermatoneurology refers to a ____________________ of the ________________

and the ____________________.

110. (study, nerves, skin) Itis means an inflamed condition or inflammation. Dermatitis refers to an ________________ of the ________________.

111. (inflammation, skin) Under the skin is

a. intradermic
b. hypodermic
c. subdermic
d. epidermic

112. (b, c) Aden is a root meaning gland. A gland can be removed by a/an

a. neurectomy
b. adenectomy
c. arterectomy
d. nephrectomy

113. (b) An inflammation of the tissues around a gland would be

a. pericarditis
b. periarteritis
c. periadenitis
d. periangiitis

114. (c) A condition of enlarged glands would be

a. hyperadenosis
b. hypoadenia

115. (a) The medical root meaning fat is adip. The condition of a person who is extremely fat is described as

a. hyperalgesia
b. hyperalgia
c. hyperadiposis
d. hyperadenosis

116. (c) Fat is usually painful to the fat man. A neurotic state in which there are painful areas of fat is

a. neuralgia
b. adipositis
c. neuritis
d. adiposalgia

117. (d) Inflammation of the fatty tissue is called

a. neuritis
b. adipositis
c. nephritis
d. carditis

118. (b) Producing fat or fatness is

a. cytogenic
b. myogenic
c. adipogenic
d. ovigenic

119. (c) A duct is a tube or passage. An egg tube would be an

a. ovicapsule
b. oviferous
c. oviform
d. oviduct

120. (d) A gland having no excretory passage would be a ____________less gland.

121. (duct) Either tube or passage is meant by the stem

a. duct
b. ovi
c. nephro
d. osteo

122. (a) Time for a review. The words in column A are lay terms. The words in column B are medical terms. Match the lay terms to the medical terms.

	A		B
a.	an inflammation of the liver. _____	(1)	hypochondrial
b.	without a head ____________	(2)	intra-arterial
c.	below the cartilage ____________	(3)	perigastrium
d.	around the stomach ____________	(4)	hepatitis
e.	within the artery ____________	(5)	acephalic

123. (a-(4), b-(5), c-(1), d-(3), e-(2)) Complete the next five words as in the last frame.

A	B
a. egg passage __________	(1) adipose
b. fat __________________	(2) cranium
c. inflamed skin ________	(3) adenal
d. skull ________________	(4) dermatitis
e. gland ________________	(5) oviduct

124. (a-(5), b-(1), c-(4), d-(2), e-(3)) Ophthalm is a root meaning eye. An eye surgically removed by a/an

a. otectomy
b. myectomy
c. nephrectomy
d. ophthalmectomy

125. (d) An inflammation of the eye is

a. ophthalmitis
b. neuritis
c. nephritis
d. carditis

126. (a) The study of the eye is called

a. neurology
b. gastrology
c. gastrology
d. ophthalmology

127. (d) Cyst is the root word meaning bladder. Within the bladder is

a. acystic
b. intracystic
c. pericystic
d. epicystic

128. (b) An inflammation inside the bladder is

a. epicystitis
b. pericystitis
c. endocystitis
d. hypocytosis

129. (c) Inflammation of tissues around the bladder is

a. cystitis
b. pericystitis
c. epicystitis
d. pericarditis

130. (b) The next group of frames is review of all the words you have learned. Match the lay term of column A with the medical term of column B.

	A		B
a.	red blood cell ________	(1)	leukocyte
b.	between the ribs ________	(2)	pericardium
c.	white blood cell ________	(3)	retronasal
d.	within the skull ________	(4)	intercostal
e.	a membranous sac around the heart ________	(5)	endoneurium
f.	behind the nose ________	(6)	bisection
g.	inside the nerve ________	(7)	erythrocyte
h.	cut in two ________	(8)	intracranium

131. (a-(7), b-(4), c-(1), d-(8), e-(2), f-(3), g-(5), h-(6)) Cholecyst is the root word meaning gallbladder. Inflammation of the gallbladder is:

a. epicystitis
b. cholecystitis
c. gastritis
d. hepatitis

132. (b) The process of removal of the gallbladder is called:

a. cholecystectomy
b. tonsillectomy
c. gastrectomy
d. lobectomy

133. (a) Correct any errors and continue with the next frame

	A		B
a.	a study of life ________	(1)	hypodermic
b.	a study of blood ________	(2)	pneumectomy
c.	extreme fatness ________	(3)	antebrachium
d.	administered below the skin ________	(4)	biology
e.	under the liver ________	(5)	myocardium
f.	a surgical removal of a lung ________	(6)	hematology

g.	forearm ______________	(7)	sub-hepatic
h.	a heart muscle ________	(8)	hyperadiposis

134. (a-(4), b-(6), c-(8), d-(1), e-(7), f-(2), g-(3), h-(5) Correct any errors and continue with the next series.

	A		B
a.	under the ribs ________	(1)	myocyte
b.	muscle cell ___________	(2)	osteopathy
c.	surgical removal of a kidney ________	(3)	neuritis
d.	bone disease __________	(4)	hepatitis
e.	pertaining to the kidneys and heart _____	(5)	thrombocyte
f.	inflammation of the nerves__________	(6)	subcostal
g.	blood clotting cell ____	(7)	nephrectomy
h.	inflammation of the liver ________	(8)	renicardiac

135. (a-(6), b-(1), c-(7), d-(2), e-(8), f-(3), g-(5), h-(4)) Correct any errors and continue with the next series.

	A		B
a.	without a head __________	(1)	hypochondrial
b.	below the cartilage _____	(2)	arteriology
c.	behind the stomach ______	(3)	intracranial
d.	a study of the arteries _____	(4)	adenitis
e.	within the skull _______	(5)	adiposis
f.	inflammation under the tongue _________	(6)	acephalic
g.	inflammation of a gland _____	(7)	subglossitis
h.	condition of being fat ______	(8)	Retrogastric

136. (a-(6), b-(1), c-(8), d-(2), e-(3), f-(7), g-(4), h-(5)) Correct any errors and continue with the next series.

	A		B
a	egg tube ________	(1)	ophthalmectomy
b:	the surgical removal of an eye ________	(2)	oviform
c.	pain in the ear ________	(3)	vasalgia
d.	egg-shaped ________	(4)	oviduct
e.	pain in vessels ________	(5)	cystectomy
f.	removal of a bladder ___	(6)	otalgia

137. (a-(4), b-(1), c-(6), d-(2), e-(3), f-(5)) Blast is a word suffix (ending) meaning forming cell. A red forming cell is a/an

a. leukocyte
b. erythroblast
c. leukoblast
d. erythrocyte

138. (b) Muscle tissue is formed from a

a. Neuroblast
b. thromboblast
c. myoblast
d. osteoblast

139. (c) A white forming cell is a/an

a. leukocyte
b. erythroblast
c. leukoblast
d. nephrectomy

140. (c) Ectomy attached to a word means a surgical removal of that part. A surgical removal of the liver would be a

a. hepatectomy
b. hepatotomy

142. (a) Removing a part of the heart is accomplished through a

a. carditis
b. cardiotomy
c. cardiectomy
d. cardiataxia

143. (c) A kidney is removed through a

a. hepatectomy
b. nephrectomy
c. arterectomy
d. vasectomy

144. (b) Hemat was the prefix meaning blood; emia is the suffix meaning condition of the ____________.

145. (blood) The word which means a person is deficient or without blood is

a. erythrocyte
b. hypoleukocytosis
c. hyperleukocytosis
d. anemia

146. (d) A condition of the white blood cells is called

a. erythremia
b. leukemia

147. (b) The condition of excess cholesterol in the blood is

a. hypercalcemia
b. hypercholesterolemia

148. (b) Itis is a suffix meaning inflammation. Inflammation of the nerves is

a. hepatitis
b. nephritis
c. neuritis
d. carditis

149. (c) Inflammation of the liver is

a. hepatitis
b. nephritis
c. neuritis
d. carditis

150. (a) An inflammed kidney would be called nephr _________________.

151. (itis) Logy is a suffix meaning a study of. A study of the blood is

a. cardiology
b. hematology
c. nephrology
d. myology

152. (b) A study of the nerves would be called neuro ________________.

153. (logy) Myology is a ________________ of the ______________________.

154. (study, muscle) Pathy is the suffix meaning disease. A disease of the eye would be

a. otopathy
b. myopathy
c. cardiopathy
d. opthalmopathy

155. (d) Any disease of the bone is called

a. osteitis
b. ostalgia
c. osteopathy
d. ostectomy

156. (c) A study of disease is called

a. pathology
b. myology

157. (a) A condition is indicated by the suffix osis. A nerve condition is

a. neuritis
b. neurosis
c. neurectomy

158. (b) A condition of a heart muscle would be

a. myocardium
b. myocardosis
c. myocardial
d. myocele

159. (b) Scopy means a visual examination of. A visual examination inside a part is performed by a/an

a. episcopy
b. endoscopy
c. periscopy
d. dermatoscopy

160. (b) A visual examination of the eye is performed by a/an

a. otoscopy
b. cardioscopy
c. opthalmoscopy

161. (c) The suffix ______________ is used to indicate a visual examination.

162. (scopy) Stasis is a suffix meaning stoppage or standing still. A stoppage of blood is called

a. hemostasis
b. intestinal stasis
c. ileal stasis

163. (a) Stoppage of the flow of fluid from the kidney is

a. hemostasis
b. urine stasis

164. (b) When the eyes are fixed in one place, it is called

a. hemostasis
b. venous stasis
c. opthalmostasis

165. (c) To the words in Column A add the appropriate ending requested in Column B.

	A	B
a.	erythro ______________	red forming cell
b.	aden ______________	surgical removal of a gland
c.	leuk ______________	condition of white blood cells
d.	neur ______________	inflammation of a nerve
e.	hemato ______________	study of blood
f.	osteo ______________	bone disease
g.	nephr ______________	condition of the kidney
h.	endo ______________	visual examination inside
i.	hemo ______________	standing or stopped blood

Review any endings you may have missed.

166. (a-blast, b-ectomy, c-emia, d-itis, e-logy, f-path, g-osis, h-scopy, i-stasis) Tomy means surgical incision. A surgical incision into a bladder is a

a. cystotomy b. myotomy

167. (a) There are three word endings which, when used, place the word in a class, i.e., noun, adjective, past participle. There is a fourth word ending which indicates pertaining to. These word endings are as follows:

Noun - um or ium. For a word not ending with a vowel, use "ium". If the word ends with a vowel, use "um".

Adjective - al

Past Participle - ion

Pertaining to - ac

Remember that if the word used as a noun ends in un, you would add __________ or __________.

168. (um, ium) Make nouns from the following words by adding the correct suffix to each.

cardi ____________ chondri ____________

gastr ____________

169. (cardium, gastrium, chondrium) To form a noun, you add ________

or ________.

170. (um, ium) As adjective describes something and is formed by adding al. Make the following words adjectives.

cardi ____________ brachi ____________

ren ____________

171. (cardial, renal, brachial) An adjective is formed by adding ________.

172. (al) The past participle is formed by adding ion, it indicates something that has already happened. Make the following words past participles.

adduct ____________ abduct ____________

flex ____________

173. (adduction, flexion, abduction) Past participles are formed by adding

________.

174. (ion) Pertaining to is denoted by ac. Make each of the following words "pertaining to".

cardi ____________ brachi ____________

chondri ____________

175. (cardiac, chondriac, brachiac) The suffix meaning pertaining to is

________.

176. (ac) Complete the following in column A by adding the ending called for in column B.

A	B
a. cardi ____________	noun
b. brachi ____________	adjective

A	B
c. gastr ________________	noun
d. ren ________________	adjective
e. chondri ________________	pertaining to
f. flex ________________	past participle
g. cardi ________________	pertaining to
h. adduct ________________	past participle

177. (a-um, b-al, c-ium, d-al, e-ac, f-ion, g-ac, h-ion) Ante is a prefix meaning before. The forearm is also called the

a. antecardium
b. antefebrile
c. antenatal
d. antebrachium

178. (d) Before the heart would be

a. antebrachium
b. antecardium
c. anticibum

179. (b) If mortem means death, before death is __________ mortem.

180. (ante) The following is a review of all the words you have learned. You should be able to translate all the medical terminology into lay terminology with little difficulty. Review any words you have difficulty with. When you complete this program, your instructor will give you additional instructions. Match the terminology in column A with the lay term in column B.

A	B
a. erythroblastosis ________	(1) excessive blood
b. gastrotomy ____________	(2) inflammation of the skin with redness
c. hyperemia ____________	(3) a condition of red forming cells
d. pericardectomy ________	(4) a condition of the cartilage and bone
e. osteochondrosis ________	(5) forming blood cells
f. erythrodermatitis _______	(6) surgical removal of the sac around the heart.
g. hematocytoblast ________	(7) cutting the stomach

181. (a-(3), b-(7), c-(1), d-(6), e-(4), f-(2), g-(5)) Continue with the following words.

	A		B
a.	hypochondrium __________	(1)	pertaining to the lungs and the heart
b.	subdermal ______________	(2)	pertaining to the arms and head
c.	pneumocardial __________	(3)	under the cartilage (ribs)
d.	periopthalmitis ________	(4)	not originating in the liver
e.	brachiocephalic ________	(5)	an inflammation of the tissues around the eye
f.	anhepatogenic __________	(6)	a condition in which the blood does not clot
g.	athrombosis ____________	(7)	under the skin

(a-(3), b-(7), c-(1), d-(5), e-(2), f-(4), g-(6))

PART II

1. Match dietetic terms to the abbreviations.

	A		B
a.	American Dietetic Association	________	q2h
b.	Potassium	________	Kg
c.	Phosphorus	________	fdg
d.	Edible portion	________	P.C.
e.	Calorie restricted	________	cc
f.	Kilogram	________	food exch
g.	every	________	H C
h.	protein	________	W/ or $\overline{C}$
i.	Carbohydrate	________	Fat/R
j.	Iron	________	fort
k.	as desired	________	PRN
l.	every two hours (daytime)	________	K
m.	feeding	________	bid or 2 id
n.	after meals	________	Pro
o.	milligram	________	P
p.	cubic centimeter	________	Cal/R
q.	International unit	________	Ca
r.	gram	________	ADA
s.	food exchange	________	q
t.	fortified	________	CHO
u.	twice a day	________	mg
v.	as often as necessary	________	Fe
w.	Calcium	________	EP
x.	Hard cooked	________	gm
y.	Fat Restricted	________	ad lib
z.	with	________	IU

2. Medical terminology is derived from a few basic words combined into terms.

   a. True

   b. False

3. Medical terminology exists only for the purpose of medicine.

   a. True

   b. False

4. Medical terminology is used to describe:

   a. functions of the human body.

   b. the normal or abnormal state of the human body.

   c. diseases or injuries which affect the human body.

   d. all of the above.

   e. none of the above.

5. A prefix is one or more letters or symbols attached to the ending of a word.

   a. True

   b. False

6. The abbreviation for "with" is:

   a. ē

   b. w/

   c. s̄

   d. l

7. TID means:

   a. twice a day

   b. three times a day

   c. four times a day

   d. six times a day

STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-1c

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION
(BASIC NUTRITION, ENERGY METABOLISM, BASIC FOUR FOOD GROUPS)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

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SW 3ABR62231-2-II-1c
September 1975

NORMAL NUTRITION
(BASIC NUTRITION, ENERGY METABOLISM, BASIC FOUR FOOD GROUPS)

OBJECTIVES

Upon completion of this study guide and workbook and reading assignment, you will be able to:

1. Identify the Basic Four Food Groups and the amount of each to be included in the daily diet.

2. Describe basic nutrition.

3. Describe energy metabolism.

4. Define the basal metabolic rate and discuss factors affecting the BMR.

INTRODUCTION

As a Diet Therapy Specialist, you will be expected to be an "expert" in nutrition. You will be called upon to answer many questions concerning the nutrient content of various foods. In addition to knowing how many calories there are in the food, you should be able to tell why the food is important to the body and know the specific nutrients contained in the food. This will be especially important when, at a later time, you start planning therapeutic diets. To effectively plan therapeutic diets, you must first be familiar with normal nutrition, which is the basis for all therapeutic diets. In this SW and during class discussion, you will be introduced to the Basic Four Food Groups and how to use them when planning or evaluating diets. You will also learn about metabolism and the factors involved in determining total calorie and nutrient requirements of the body.

INFORMATION

The term "diet" may be defined in several ways. When an individual talks of his diet, any of the following definitions would be correct:

1. The amount of food and drink a person consumes daily

2. Special limited food and drink prescribed for a specific condition or for weight loss or gain.

3. A prescription of food.

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BASIC FOUR FOOD GROUPS

The foods you consume each day can be divided into the Basic Four Food Groups: Group I - Milk; Group II - Meat; Group III - Breads and Cereals; and Group IV - Vegetables and Fruits. The Basic Diet is composed of the minimum number of servings for an adult from each of these Basic Four Food Groups. The protein, mineral, and vitamin requirements are met and the caloric levels are approximately sufficient to support basal metabolism, which will be discussed later in this SW. We must stress that omitting any food group from the diet will cause harm to the body.

A simple, efficient method of evaluating the nutritional adequacy of any diet is by comparing the diet with the Basic Four. Does it meet minimum requirements established by the Basic Four? Another method of grouping foods is by the eleven food groups. These eleven groups are based on weekly food purchases while the Basic Four are based on daily consumption.

BASIC NUTRITION

Basic Nutrition is defined as the science of foods, the nutrients and other substances therein; their action, interaction, and balance in relationship to health and disease; the process by which the organism ingests, digests, absorbs, transports, and utilizes nutrients and disposes of their end products.

The following outline lists the Basic Four Food Groups by categories:

The following is a comparison of the amounts of food allowed for an adult by both the Basic Four and the Eleven Food Groups:

BASIC FOUR FOOD GROUPS

GROUP I	Milk	2 cups
GROUP II	Meat Eggs	2 servings
GROUP III	Cereal Potatoes Bread	4 servings
GROUP IV	Vegetables and Fruits	4 servings

ELEVEN FOOD GROUPS

Milk, Cheese, Ice Cream	3 1/2 qt.
Meat, Poultry, Fish	4 lb. 12 oz.
Eggs	8
Dry Beans, Peas, Nuts	4 oz.
Citrus Fruit, Tomatoes	2 lb. 4 oz.
Dark Green and Deep-Yellow Vegetables	1 lb. 8 oz.
Potatoes	1 lb. 8 oz.
Other Vegetables and Fruit	5 lb. 12 oz.
Flours, Cereals, Baked Foods	2 lb. 4 oz.
Fats, Oils	8 oz.
Sugars, Sweets	14 oz.

Remember that the above amounts of food are allowances for an adult. The amounts will differ for children, young adults, and older persons to compensate for growth, activity, and age.

ENERGY METABOLISM

Energy is defined as the capacity for doing work. Just as a car requires gasoline to run, in the same sense, your body requires fuel to produce energy. The automobile can run effectively on one grade of gasoline, but your body requires a variety of nutrients to run at top efficiency.

Energy metabolism is that energy required by the body for:

- Maintaining vital functions;
- Voluntary activities of daily living; and
- Digesting, absorbing, and assimilating food.

Some of the body's functions are performed automatically, and an individual cannot voluntarily control them. Most of the time we aren't aware that these functions are being performed. Some examples of this "involuntary" work are:

- Pulsations of the heart
- Breathing
- Work of the glands
- Muscle tone
- Constant body temperature

You may have some doubts about breathing being an involuntary action. It is agreed that you can voluntarily stop and start your breathing for a time, but normally, breathing is done without conscious effort on your part.

All other activities performed daily are known as "voluntary" actions. These activities increase the body's need for fuel. The more strenuous the activity, the more fuel the body requires. The following list shows how calorie requirements vary with the type of activity performed:

TYPE OF ACTIVITY	CALORIES PER HOUR
Sedentary:	
Reading, watching television, typing	80 to 100
Light:	
Dishes, ironing, walking slowly, washing	110 to 160
Moderate:	
Making beds, sweeping, light carpentry work	170 to 240
Vigorous:	
Bowling, golfing, heavy scrubbing	250 to 350
Strenuous:	
Swimming, playing tennis, playing football	350 and more

Digestion, absorption, and assimilation can also be classified as involuntary functions of the body. They are not included in the first group of vital functions because as the body performs these functions, the need for fuel is further increased.

BASAL METABOLIC RATE

The amount of energy required to carry on the involuntary work of the body and to maintain the body temperature is called the Basal Metabolic Rate (BMR). It is important to remember that only the involuntary body functions are included when calculating the BMR. This is the energy required to just keep you alive. The basal metabolic rate is always measured while the patient is at rest.

FACTORS INFLUENCING THE BASAL METABOLIC RATE

Remember that each individual is different. Therefore, even under the most highly controlled conditions, variations occur from person to person. The following paragraphs explain the factors which influence an individual's BMR.

Surface Area

Heat radiates from the surface of the skin. The heat loss is always proportional to the surface area exposed, so as the surface skin area increases, so will the heat radiation. Let us compare two persons of the same weight. One individual is tall and thin; the other, short and fat. The tall, thin person will have more skin surface area; therefore, his basal metabolism will be higher.

Sex and Body Composition

An individual with a large proportion of highly developed active muscle tissue (an athlete for example) will have a higher basal metabolic rate than a person with deposits of inactive fatty tissue. Generally, athletes have a 5 percent higher basal metabolism than nonathletes. Women normally do not develop muscles to the extent that men do so will have more inactive fatty tissue. (This does not necessarily mean that they are overweight.) A woman's basal metabolic rate is generally 6 to 10 percent lower than that of a man.

Age

During the period of rapid growth (childhood and adolescence), a high basal metabolic rate will be measured because much energy is stored and then expended during growth. Basal metabolism is at its highest level between the ages of 1 and 2 when growth is most rapid. A gradual decline occurs from 2 to 5 years of age until puberty and adolescence when the BMR increases. After 25 years of age, the metabolic rate gradually declines with each decade (10 years).

Endocrine Glands

The secretion of the thyroid gland, thyroxine, exerts a marked influence on basal metabolism. In cases of an overactive thyroid, the basal metabolism will be speeded up. You probably noticed in yourself that during fear or excitement, your heart beats at a faster than normal rate and you may perspire. This is due to an increased excretion of epinephrine (adrenaline) from the adrenal glands. Naturally, this increased excretion will increase metabolism. Disturbances of the pituitary gland may also effect the BMR of an individual.

State of Nutrition

Undernourished individuals normally have a lower BMR than individuals on well-balanced diets due to a decreased quantity of active body tissues. However, in some undernourished individuals, the BMR is increased due to more active lean tissue. If severe under-nutrition occurs, the BMR will decrease due to the destruction of body tissue.

Sleep

The BMR is about 10 percent lower during sleep than in the waking state. However, this percentage varies widely for different individuals, depending upon the amount of motion while asleep.

Body Temperature

For each degree Fahrenheit the body temperature is elevated, the basal metabolism is increased by 7 percent.

FACTORS INFLUENCING THE TOTAL ENERGY REQUIREMENT

Thus far, you have seen the factors affecting the involuntary work of the body. These are not be be confused with the factors which influence the total energy requirement of the individual. In addition to the calories needed to supply energy to cover the BMR, calories must be added to cover the following factors if an energy balance is to be maintained.

Muscular Activity

Next to basal metabolism, activity accounts for the largest energy expenditure. People who are very active may have energy requirements for activities that exceed the energy requirements for basal metabolism. Naturally, the more vigorous the activity, the more energy will be required.

Mental Effort

Energy requirements for nervous activity are a significant part of the BMR. However, excessive mental activity does not appreciably increase total energy requirements. Any increase in energy requirements would be due to the accompanying restlessness and tenseness rather than the mental effort itself.

Food

Energy is expended in the digestion and absorption of food. Some foods increase heat production more than others. For example, protein alone increases the metabolic rate by 30 percent while carbohydrates and fats produce a much smaller increase. For an individual eating an average balanced diet, the increase in metabolism is approximately 10 percent.

Maintenance of Body Temperature

Body temperature is controlled by the amount of blood brought to the surface of the skin. When the surrounding temperature is low, heat is lost from the body surface at a faster rate. Energy requirements are usually increased in extreme heat or cold because the body either perspires or shivers to adjust to the surrounding temperature. Especially when exposed to cold temperatures, the body will do additional voluntary and involuntary work to maintain normal temperatures. This increased activity results in increased energy requirements.

MEASURING ENERGY

Energy requirements of the body are measured and stated in terms of calories. Calories, or energy, are supplied by the burning (oxidation) of nutrients in the body. The large calorie (or kilocalorie) is defined as the amount of heat required to raise the temperature of 1 Kg of water 1° Centigrade. This is the calorie we refer to when planning diets. The large calorie is 1000 times as large as the small calorie; the small calorie is a unit used in physics; the large calorie is used in nutrition.

Some nutrients can be referred to as energy producers. These nutrients are protein, carbohydrate and fat. They are the forms of fuel used by the body and, like gasoline, differ in fuel values. If one gram of each of these "fuels" in their pure form were burned by the body, the calorie yields would be:

Carbohydrate = 4 calories

Protein = 4 calories

Fat = 9 calories

Memorize these calorie values; you will use them daily in your work as a Diet Therapy Specialist, and you will use them later in this course when you calculate diets. For example, a diet containing 65 grams carbohydrate, 93 grams protein, and 54 grams fat would yield 1118 calories. This is the way you do the calculations:

65 grams Carbohydrate x 4 calories/gram = 260 calories
93 grams Protein x 4 calories/gram = 372 calories
54 grams Fat x 9 calories/gram = 486 calories
TOTAL 1118 calories

READING ASSIGNMENT

1. Normal and Therapeutic Nutrition (Robinson), Chap 7.
2. Introductory Nutrition (Guthrie), Chap 5.

QUESTIONS

1. Describe the basic diet.

2. List the Basic Four Food Groups.

3. List the amounts of each of the following foods to be included in the daily diet as indicated.

	Adults	Teenagers	Children
Milk			
Meat			
Bread and Cereal			
Fruits and Vegetables			

4. What other types of food groupings were discussed in this lesson, and on what are the quantities of foods listed based?

5. Define energy.

6. Define energy metabolism.

7. If you ingest a caloric intake greater than the body's energy requirement, would you lose or gain weight?

8. List five involuntary body functions requiring energy.

a.

b.

c.

d.

e.

9. The large calorie is the same as

10. One calorie is the amount of heat required to

11. One gram of pure:

Carbohydrate yields: __________ calories

Protein yields: __________ calories

Fat yields: __________ calories

12. BMR is the abbreviation for:

Define BMR:

13. List seven factors that influence the BMR.

a.

b.

c.

d.

e.

f.

g.

14. List four factors which influence the total energy requirements of the body.

a.

b.

c.

d.

STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-1d

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION
(FOOD COMPOSITION)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-1d
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NORMAL NUTRITION
(FOOD COMPOSITION)

OBJECTIVES

Upon completion of this lesson you will be able to:

1. Define food and explain its functions in the diet.

2. Identify the individual nutrients of which foods are composed and their functions in the body.

INTRODUCTION

You have already learned that as a Diet Therapy Specialist you will be calculating and preparing both normal and therapeutic diets. You will frequently receive a diet order where one or more of the nutrients is to be limited or perhaps given in larger-than-usual amounts. It is obvious, then, that you MUST know the food sources of these nutrients. And, you will need to know how the nutrients function in the body. This unit of instruction is designed to familiarize you with this information.

READING ASSIGNMENT

Introductory Nutrition, 2nd Edition, by Guthrie, Chapters 2, 3, 4, 6 and 10.

INFORMATION

Food is defined as: Any edible substance, including both liquid and solid material, which is utilized to maintain and build body tissues, regulate body processes and supply energy and heat for the body.

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FUNCTIONS OF FOOD

We all know that food tastes good and satisfies our appetite when we are hungry, but did you ever wonder what your body is doing with the food after you swallowed it? Certainly there must be some fantastic processing operation that takes place inside the body in order for it to take the food and drink we consume and turn it into forms readily usable by the body. These usable forms of food, called nutrients, enter into some highly specialized functions within the body. The foods we eat are broken down within the body and used for the following general functions:

a. Furnish heat and energy (calories)

b. Build and repair tissues.

c. Regulate body processes.

Under each of these general functions could be listed the many specialized functions performed by each nutrient. For example, specific vitamins and minerals must be present in sufficient quantities for oxidation (burning) of carbohydrate (CHO), protein, and fat to produce heat and energy. Vitamin D and phosphorus must be present in the diet for calcium to be utilized in building bone and teeth tissues in the body.

The list of specific functions could go on and on but for now, you need to be aware of the classification of foods into general classes of nutrients. We usually consider foods to be classified into six classes of nutrients: carbohydrates, proteins, fats, vitamins, minerals, and water. Since bulk is so often limited in the diets we prepare, fiber is considered as the seventh class of nutrients. Now we shall proceed to the discussion of the individual nutrients.

CLASSIFICATION OF FOODS INTO NUTRIENTS

Protein

Every animal, including man, must have an adequate supply of protein to provide for growth and maintenance of body tissue. Protein is the fundamental structural element (of the protoplasm) of every body cell. It is the principle source of nitrogen in the diet. Since proteins are the principle constituents of the active tissues of the body and the body is dependent upon food proteins for these indispensable substances, the quality and quantity of protein in the daily diet are of prime importance.

a. Definition of Protein: A group name to designate the principle nitrogen-bearing parts of all plant and animal tissue.

b. Chemical Composition of Protein: Proteins are extremely complex, organic compounds containing the elements carbon, hydrogen, oxygen, nitrogen, and with few exceptions, sulfur. Most proteins also contain phosphorus, and some specialized proteins contain iron, iodine, copper and other inorganic elements. Proteins are made up of simpler substances called amino acids. There are 20 or more different amino acids which may be combined in many ways to produce a variety of proteins. Eight of these amino acids are called "essential" for adults (10 are essential for children), meaning that the body cannot synthesis them in adequate amounts to meet the needs of the body. The "nonessential" amino acids are the remaining 12 or more which the human body can manufacture if appropriate materials are present.

c. Classification of Proteins: Proteins are divided into three categories according to food sources:

(1) Complete Proteins: Contain all essential amino acids in sufficient quantities for sustaining life and promoting a normal rate of growth. Eggs, meat, poultry, cheese, and milk are examples of complete proteins.

(2) Partially Complete Proteins: Will maintain life, but lacks sufficient amounts of some amino acids to promote growth. Grains, cereal, and legumes are examples of partially complete proteins.

(3) Incomplete Proteins: Are incapable of replacing or building tissue and hence cannot support life, let alone promote growth. Corn and gelatin are examples of incomplete proteins.

d. Functions of Proteins:

(1) Supply the materials required for repairing worn-out body tissues and building new body tissues during periods of growth.

(2) Proteins compose the main solid matter of muscles, organs, and endocrine glands.

(3) Blood proteins form together to compose hemoglobin and plasma.

(4) Provide the basic materials for enzymes, antibodies and hormones.

(5) Provide energy if not enough CHO and fat is consumed to fill the body's needs.

e. Protein Composition of the Body: Proteins are found in almost every part of the human body. The outer layer of skin, the hair and fingernails all consist of insoluble protein. Lean muscle, the heart, and liver contain 17-21% protein which is the most abundant constituent. Also, blood contains protein hemoglobin in its red cells and several soluble proteins in its plasma.

f. Sources - Food sources of protein are classified in three ways:

(1) Complete protein - (containing all essential amino acids in sufficient quantities for sustaining life and a normal rate of growth). Eggs, meat, and milk products are examples of complete proteins.

(2) Partially Complete Proteins - (Will maintain life, but lack sufficient amounts of some amino acids to promote growth). Wheat, cereals and legumes (peas and beans) are examples of partially complete protein.

(3) Incomplete Proteins - (are incapable of replacing or building tissue and hence cannot support life, let alone promote growth). Corn and gelatin are examples of incomplete protein.

g. Deficiencies: A deficiency of protein in the United States is rare. However, in portions of the country where knowledge of good nutrition is limited due to lack of income or education, miscarriages and premature births occur more frequently. In at least sixty underdeveloped countries of the world, a protein deficiency disease, known as kwashiorkor, is a major health problem. This disease occurs most frequently in infants when the mother's milk is taken away and the diet of the people is given the child. This diet is often severely lacking in protein.

h. Allowances: The minimum daily protein requirement is now set at 0.8 gram per kilogram of body weight. However, this requirement may be raised or lowered due to several factors which dictate the daily protein requirements for each individual. These are:

(1) Body Size

(2) Quality of protein consumed

(3) Adequacy of caloric intake

(4) Previous state of nutrition

(5) Efficiency of digestion

(6) Physiologic needs during growth, pregnancy, and illness.

Carbohydrates

Carbohydrates are the major source of energy for all the people of the world. In America, 40 to 50% of the diet is composed of carbohydrate, though in other parts of the world, the percentage is greater. The reason for this large percentage is that CHO is the most economical source of energy, being present in cereal grains, root vegetables, pastry products, and fruits. These foods are usually the least expensive foods to buy.

a. Definition - Carbohydrates are simple sugars or substances which can be reduced to simple sugars by hydrolysis. Hydrolysis is the decomposition of a substance by the addition of water.

b. Chemical Composition of Carbohydrates - Carbohydrates are composed of carbon, hydrogen, and oxygen. These elements are shown in the abbreviation for carbohydrate: CHO.

c. Classification - There are three general classifications of carbohydrates with three subdivisions under each classification. These are:

(1) Monosaccharides - Group name for the simplest sugars. These contain only one sugar group per molecule (MONO = one) and cannot be hydrolyzed to a simpler form.

(a) Glucose - dextrose, corn sugar

(b) Fructose - fruit sugar

(c) Galactose - results from hydrolysis of milk sugar.

(2) Disaccharides - These sugars yield two molecules (di = two) of the same or different monosacchrides by hydrolysis.

(a) Sucrose - table sugar

(b) Maltose - malt sugar

(c) Lactose - milk sugar

(3) Polysaccharides - Complex carbohydrates formed by large numbers of monosaccharide units. (poly = many)

(a) Starch - form in which plants store carbohydrates.

(b) Glycogen - animal starch

(c) Cellulose - skin of fruits and vegetables

d. Functions - Carbohydrates perform four main functions in the body:

(1) To furnish energy necessary to carry on the work of the body.

(2) To "spare" protein.

(3) To prevent acidosis (or ketosis) during fat breakdown.

(4) To provide bulk for the proper functioning of the intestines.

e. Carbohydrate Composition of the Body - Most CHO is used immediately as energy. The lung and nerve cells of the body depend entirely upon CHO for energy as they cannot utilize protein and fat. Excess monosaccharides in the diet are converted by the liver, into glycogen, and then stored as glycogen in liver and muscle cells. If excess quantities of CHO are consumed, the CHO is converted to adipose tissue for storage until needed.

f. Sources - There are many sources of carbohydrate. The following list contains only a few of the most common.

(1) Sugars, syrups, jellies, and jams

(2) Flour, cereal, crackers

(3) Fruits, vegetables, potatoes, sweet potatoes

(4) Milk

(5) Bread, cakes, pies and pastries

g. Deficiency - A deficiency of carbohydrates causes a loss of energy to the body. As a result, the body burns proteins and fats to replace the lost energy.

h. Allowance - There is no precise allowance for carbohydrate, but the normal adult requires approximately 500 calories per day from carbohydrate sources.

Fats

Fats are the most concentrated form of energy in our food supply. The term "lipid" is the correct one for this group of nutrients but both terms (fats or lipids) may be used to identify the fats and oils found in food.

Fats have long been prized in mans' struggle for food. The prosperous individual would share his oil with others less fortunate than himself. The fatted calf was always slain for the feast. Fats are still important in the diet as they provide approximately 40 to 50% of the daily calories in the American diet.

a. Definition - Fats are organic compounds composed of carbon, hydrogen and oxygen formed by the union of fatty acids with an organic alcohol, glycerol.

b. Chemical Composition of Fats - Fats are organic compounds composed of carbon, hydrogen, and oxygen. Unlike carbohydrates and proteins, they contain a much lower ratio of oxygen to carbon and hydrogen and have a few added molecules of other elements. The decreased oxygen ratio increases their fuel value. The physical characteristics and stability of the fat are determined by the degree of saturation of the carbon atoms by hydrogen atoms.

c. Classification - The fats themselves are not classified but the fatty acid portions of the fat molecule are classified into two categories:

(1) Saturated - have no double bonds between the carbon atoms. They contain as much hydrogen as the carbon atoms are capable of holding.

(2) Unsaturated - have one or more double bonds between the carbon atoms so that they are capable of holding more hydrogen atoms.

These classifications are especially important when diet therapy personnel are planning and preparing fat-controlled, controlled-cholesterol diets. In these diets, the type of fat (saturated, such as butter, bacon or unsaturated, such as vegetable oil) is very important.

d. Functions - Fats have many varied functions in the body. The following are the most important functions:

(1) Provides 40 to 50% of the body's energy requirement.

(2) Provides padding for vital organs and nerves, and absorbs shock from the outer surface of the body.

(3) Serves as a "sparer" of protein.

(4) Serves as insulation by preventing loss of heat from the body surface area.

(5) Serves as a carrier of fat-soluble vitamins.

(6) Delays emptying time of the stomach, thus retarding hunger.

(7) Enhances the palatability of the diet.

(8) Acts as a lubricant to promote good elimination of waste material from the gastro-intestinal tract.

e. Fat composition of the Body - Body fat represents the primary form of stored energy in the body. Fats consumed in the diet are converted to fatty acids and glycerol during digestion. Some of the glycerol is converted to glucose and metabolized in the same way. Some may be converted to glycogen or converted into adipose tissue and stored as a future energy source.

f. Sources - Sources of fat in the diet fall into two main categories - visible and invisible.

(1) Visible fats are those foods which are composed almost entirely of fat. Some examples are butter, margarine, lard , cream, oil and shortening.

(2) Invisible fats are those fats which are in the diet because they are included in other foods but are not necessarily visible. These include such items as poultry, fish, dairy products, well-marbled meats, eggs, pastries, and cheese.

g. Deficiencies - Lack of fats causes the loss of fat-soluble vitamins A, D, E, and K. Also, up to 40% of the normal caloric intake would be lost if fats were omitted from the diet.

h. Allowances - No daily allowance for fats has been established since fats are added to the diet to bring the calorie intake up to the desired level. However, it is recommended that polyunsaturated fats be substituted for the more saturated fats.

Vitamins

Interest in vitamins was aroused early in history when it was discovered that some elements in food played important roles in deficiency diseases such as scurvy, pellagra, and beriberi. It was not known that these elements were but physicians did know that certain foods had to be included in the diet or the individual would develop the disease.. It wasn't until 1915 that the first vitamins were actually discovered and 1926 before these vitamins were isolated. A new vitamin, Vitamin "Q," was recently discovered in late 1973.

Vitamins are often called "accessory food factors" because they do not supply calories nor contribute to body mass. Except for a very few, the body cannot synthesize vitamins. This means that vitamins must be supplied in the diet itself or as an addition to it.

a. Definition - The name given to a group of unrelated organic compounds needed only in minute quantities in the diet but which are essential for some specific metabolic reactions within the cells and are necessary for normal growth and maintenance of health.

b. Classification - Vitamins are divided into 2 classes:

(1) Fat-Soluble Vitamins: Vitamins A, D, E, and K are in this class. They are soluble in fat and in fat-solvents. Excessive amounts of these vitamins in the diet will be stored so it is not absolutely necessary to receive them in the diet every day.

(2) Water-Soluble Vitamins: The B-Complex vitamins and Vitamin C (ascorbic acid) fall into this category. The main vitamins in the B-complex group with which we are concerned are riboflavin (B_2), thiamine (B_1), and niacin. These vitamins are soluble in water. The body stores a minimal amount of the dietary excesses and excretes the remainder in the urine. Therefore, adequate amounts of these vitamins must be included in the diet daily.

c. Functions - The body uses vitamins to:

(1) Promote growth

(2) Aid in producing healthy, normal children

(3) Protect against disease

(4) Resist infection

d. Measurement - Fat - soluble vitamins are measured as follows:

(1) Vitamins A and D - International Units (I.U)

(2) Vitamin E - milligrams

(3) Vitamin K - milligrams and micrograms

Water-soluble vitamins are measured as follows:

(1) Thiamine and riboflavin - milligrams or micrograms

(2) Niacin and ascorbic acid (Vitamin C) - milligrams

e. Toxicity - With the present trend of "health foods" and vitamin pills, the danger of an overdose of vitamins is ever present. The harmful side effects of excessive amounts are found mainly with the fat-soluble vitamins A, D, and K, and the water-soluble vitamin, thiamine.

f. Sources, deficiency and allowances - the chart on the next page lists the food sources, effects of deficiency, and daily allowance of vitamins.

VITAMIN	FOOD SOURCES	EFFECT OF DEFICIENCY	DAILY ALLOWANCE*
A	Fish liver oils, butter, liver, cream, whole milk, cheese, egg yolk, fortified margarine	Night blindness Infection of the upper respiratory tract	Adult - 5000 I.U. man 4000 I.U. woman
D	Fish liver oils, fortified milk, activated sterols, exposure to sunlight	Rickets in children Osteomalacia in adults Tetanic convulsions in infants	Children & Adults 400 I.U.
E	Wheat germ oil, green leafy vegetables, legumes, nuts, egg yolk, vegetable oils	Deficiency not likely but when it occurs, the first sign is increased hemolysis of red blood cells resulting in anemia	15 I.U. for adult male 12 I.U. for adult female
K	Green leafy vegetables (esp. spinach, cabbage, kale, and lettuce), wheat bran, soybeans, oil, cheese, liver, egg yolk	Prolonged clotting time of the blood	Not known
Ascorbic acid (Vitamin C)	Citrus fruits, tomatoes, strawberries, cantaloupe, cabbage, broccoli, potatoes	Scurvy Stunted growth Subcutaneous hemorrhages	45 mg for adult female 45 mg for adult male
Thiamine (Vitamin B_1)	Pork, liver, whole grain cereals and bread, soybeans, peanuts, legumes, egg yolks	Beriberi, fatigue, lack of appetite, emotional instability, cardiac failure, impairment of central nervous system	0.5 mg per 1000 calories or 1.4 mg for adult male 1.0 mg for adult female
Riboflavin (Vitamin B_2)	Milk, cheese, eggs, liver, kidneys, heart, green leafy vegetables	Cheilosis, retarded growth, blurred vision, scaly skin, burning and itching eyes	1.2 mg for adult female 1.6 mg for adult male
Niacin	Lean meat, fish, poultry, cereals, breads, green vegetables, brewer's yeast	Pellagra Dermatitis	13 mg for adult female 18 mg for adult male

*1974 RDA

Minerals

Although mineral elements constitute only a small portion of the body tissues (4%), they are essential both as structural components and in many vital processes. Some form hard tissue such as bones and teeth; some are in fluids and soft tissue.

a. Definition of Minerals: Minerals are those elements which remain largely as ash when plant or animal tissues are burned by the body.

b. Chemical Composition of Minerals: When referring to minerals in nutrition we refer to the elements in their simple, inorganic form. For example, when referring to a sodium-restricted diet, we are referring to the sodium ion (Na^+), not to table salt, ($NaCl$).

c. Classification of Minerals: Of all the minerals in the diet, 17 have been proven essential for good nutritional status. Many others have been found in minute quantities in ash but their functions are not known. None of the minerals are present in any large amount. This is reflected by the three classifications of minerals.

(1) Macro-nutrients - present in quantities larger than 0.005% body weight. These minerals are: calcium, phosphorus, potassium, sulfur, sodium, chlorine and magnesium.

(2) Micro-nutrients - present in quantities smaller than 0.005% body weight. These minerals are: Iron, zinc, selenium, manganese, copper, iodine, molybdenum, cobalt, flourine, and chromium.

(3) Trace elements - present in quantities too small to measure. Their functions are not known. These minerals are: strontium, bromine, vanadium, gold, silver, nickel, tin, aluminum, bismuth, arsenic, and boron.

d. Sources, deficiency and allowance: The chart on the next page lists the functions, sources, deficiencies, and daily allowances of the minerals most often studied when analyzing a diet.

MINERAL	FUNCTION	FOOD SOURCES	DEFICIENCY	ALLOWANCE
Calcium	Builds bones and teeth, Heart rhythm	Milk, Cheese, Greens	Rickets, Poorly developed bones and teeth	0.8 gms for adult
Phosphorus	Buffer Salts Metabolism of CHO Essential for utilization of calcium in bones and teeth	Milk, Cheese, Egg yolk	Rickets Stunted growth	0.8 gms for adult
Potassium	Intracellular fluid balance, CHO & Protein metabolism	Meat, Oranges, Milk, Cereals	Rare	Unknown
Sulfur	Insulin Hair and nail growth	Eggs, Cheese, Milk	Unknown	Diet adequate in protein
Sodium	Water balance Osmotic pressure Nerve irritability	Table salt Cured meats and foods	Not likely	0.5 mgs for adult
Chlorine	Acid-base balance	Meat, Milk, Eggs	Unknown	0.5 gms for adult
Magnesium	Bone and teeth growth	Cereals Nuts	Unknown	300 to 400 mg for adult
Iron	Part of hemoglobin and myoglobin, Transport of oxygen from lungs to tissues	Liver, Meat, Egg yolk, Green leafy vegetables	Anemia Fatigue	Men - 10 mg Women - 18 mg
Manganese	Thyroxine formation	Cereals	Unknown	Unknown
Copper	Oxidation of fatty acids	Liver, Shellfish	Retards production of hemoglobin	Unknown
Iodine	Part of thyroxine	Iodized salt Seafood	Goiter	80 to 140 mcg for adult
Zinc	Growth, Taste acuity, Appetite	Meat, Liver, Eggs and Seafood	Loss of appetite, Decreased taste acuity	15 mg

FIBER

Fiber is the chief constituent of wood, stalks, and leaves of plants, and of the outer covering of most cereals and seeds. By being the chief constituent, fiber is the framework of the plant.

No enzyme secreted in the human intestine can digest fiber. This is actually it's major asset because this undigested fiber furnishes the bulk necessary for efficient and normal peristaltic action of the intestine.

a. Definition of Fiber: The skin, seeds and structural parts of plant foods and the connective tissue fibers of meats.

b. Chemical Composition of Fiber: Fiber (or cellulose), mistakenly called residue, is no more than an indigestible carbohydrate composed of carbon, hydrogen and oxygen. No enzymes in the human digestive system are strong enough to digest this cellulose.

c. Classification: Fibers are classifed as 4 types:

(1) Cellulose - provides indigestible "bulk" which promotes efficient intestinal action.

(2) Hemicellulose - absorbs water to form a gel and increases bulk, which gives a laxative property.

(3) Lignins - gives body or smooth consistency.

(4) Connective tissue of meat - provides bulk.

d. Functions: Fiber absorbs water and this adds to the bulk of undigested materials left behind in the intestine after the food nutrients have been absorbed by the body. This process leads to peristalsis, the wave-like contractions of muscles, which causes the food to move through the intestinal tract.

e. Sources: Fiber is found in most fruits and vegetables in the pulp, skins, stalk, and leaves; also, in meats, legumes, nuts and whole grain cereals.

f. Deficiency: Diets deficient in fiber result in atonic constipation, also called "lazy bowel" constipation. This constipation is due to insufficient bulk to stimulate the nerve endings of the intestine which are responsible for peristalsis.

WATER

Water is more essential to life than food. An individual can go weeks without food, but only days without water. If a loss of 20% of water from the body occurs at any time, death will be imminent. Water is so important that it ranks second only to oxygen in sustaining life.

Water is an essential component of blood, lymph and the secretions of the body as well as of the more solid tissues. It is not changed in any way by the digestive juices, but it is a necessary constituent of them and of every cell of the body.

Moisture is necessary for the functioning of every organ of the body. Water is the universal medium in which the various chemical changes of the body take place. As a carrier, it aids in digestion, absorption, circulation and excretion. It is essential in the regulation of the body temperature, and it plays an important part in the mechanical functions, such as lubrication of joints and movement of the various organs in the abdominal cavity.

a. Definition of Water: A chemical compound containing hydrogen and oxygen

b. Chemical Composition of Water: Chemical formula is H_2O

c. Functions: Water is a solvent in which all chemical changes that occur in the cells of the body take place. It serves as a transport for all products of digestion because blood, which is actually 90% water, carries nutrients to the cells. Water regulates the body temperature through evaporation of moisture from the skin and lungs.

d. Sources: The sources of water to the body are:

(1) Water as such

(2) Water contained in foods, beverages, soups, etc.

(3) Water formed by oxidation of foodstuffs in the body.

e. Daily Allowance: 6 to 8 cups of water daily are sufficient under normal conditions. Any water taken in excess of body needs will be eliminated by the kidneys.

QUESTIONS AND PROBLEMS

1. Define food:

2. List three functions of food in the body:

   a.

   b.

   c.

3. List seven classes of food nutrients:

   a.

   b.

   c.

   d.

   e.

   f.

   g.

4. Proteins are made up of simple substances called ____________________ ____.

5. Describe the following, give two examples of each:

   a. Complete proteins

   b. Partially complete proteins

c. Incomplete proteins

6. Proteins are made up of more than _________ amino acids. Of these _________ are essential for adults.

7. A nonessential amino acid is one which the body can ____.

8. What is meant by "essential" amino acid?

9. List five functions of protein.

   a.

   b.

   c.

   d.

   e.

10. The minimum adult daily requirement for protein is now ____.

11. The major source of energy in the diet is from ____________________.

Why? ____

____

____

12. Explain what we mean when we say carbohydrate "spares" protein?

____

____

13. The abbreviation for carbohydrate is _________.

14. List five sources of carbohydrate:

a.

b.

c.

d.

e.

15. Normally, an adult would require _________calories per day from carbohydrate sources.

16. List four functions of carbohydrates in the body.

a.

b.

c.

d.

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17. What is an indigestible carbohydrate called? Give five examples.

18. The term fat and the term ____________are used interchangeably, but they both mean essentially the same thing.

19. Identify the two categories of the fatty acid portions of the fat molecule:

a.

b.

20. List five functions of fat in the body:

a.
b.
c.
d.
e.

21. Define visible fats: ____

____

22. Give five examples of visible fats:

a.

b.

c.

d.

e.

23. Define invisible fats: ____

____

24. Give five examples of invisible fats:

a.

b.

c.

d.

e.

25. Define vitamin: ____

____

____

26. When we say the body cannot synthesize vitamins we mean ____________

____

____

27. What are the two classifications of vitamins? Define each.

a.

27. (Cont)

b.

28. Examples of fat soluble vitamins are vitamins ____, ____, ____ and ____.

29. Examples of water soluble vitamins are vitamins ____, ____, ____ and ____________.

30. Vitamins A, D, E and K are measured in ________________and Vitamin C in ______________________.

31. Using information from your textbook, list three functions of Vitamin A in the body.

a.

b.

c.

32. The best food sources of Vitamin A are:

33. Vitamin D prevents ________________in children.

34. Using information from your textbook, list three functions of Vitamin C in the diet.

a.

b.

c.

35. The three best food sources of Vitamin C are:

a.

b.

c.

36. Define minerals.

37. How are minerals classified? Define each.

a.

b.

c.

38. Using your text, list two general functions of minerals.

a.

b.

39. The best food sources of calcium are ________________________________

____

40. The best food sources of iron are ________________________________

____

41. Match the nutrients in Column A with their functions in Column B.

Column A	Column B
a. _____Vitamin D	(1) Prevent scurvy
b. _____Fats	(2) Regulates body temperature.
c. _____Niacin	(3) Helps adapt eyes from light to darkness
d. _____Water	(4) Oxygen vehicle, carries oxygen to body cells.
e. _____Riboflavin	(5) Concentrated energy,
f. _____Vitamin A	(6) Build and replaces body tissues
g. _____Protein	(7) Build strong bones and teeth
h. _____Iron	(8) Aids in emotional and nervous system stability
i. _____Calcium	(9) Quick energy
j. _____Thiamine	(10) Deficiency cause cracking at corner of mouth
k. _____Vitamin C	(11) Helps prevent dermatitis
l. _____Carbohydrate	(12) To help the body to use calcium

42. Define fiber.

43. What is the function of fiber in the diet?

44. List six sources of fiber in the diet.

a.
b.
c.
d.
e.
f.

45. Lack of fiber in the diet will cause ______________________________.

46. What are the three sources of water?

a.
b.
c.

47. List three functions of water in the body.

a.
b.
c.

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION

(RDA)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-1e
September 1975

NORMAL NUTRITION

(RDA)

OBJECTIVES

Upon completion of this study guide and workbook you will have accomplished the following:

1. Define Recommended Dietary Allowances (RDA).

2. Describe the reference man and reference woman.

3. Explain dietary allowances of other countries.

4. Discuss the tables of food values and their uses.

5. Given a daily menu, appropriate texts, pertinent data and a listing of RDA, analyze a diet for specified nutrients, compare with the RDA and identify any nutritional inadequacies. Seventy percent of all requested data must be accomplished correctly.

INTRODUCTION

Now that you have studied the composition of foods and know the sources of various nutrients, the time has come to learn how to analyze a diet. By using tables of food values to analyze a diet, you can determine whether or not an individual is consuming enough nutrients to keep his body in optimum health.

READING ASSIGNMENT

1. Normal and Therapeutic Nutrition, 14th Edition, Corinne H. Robinson, Pages 30 through 33.

2. AFM 160-8, Applied Clinical Nutrition, Chapter 2.

INFORMATION

AN ADEQUATE DIET

Late in 1940, the Food and Nutrition Board of the National Research Council was activated to guide the government in a nutrition program. One of the first activities of this board was the careful review of research on human requirements for various nutrients. From this study came the publication of the Recommended Dietary Allowances in 1943. Since that time, the board has functioned, and will continue to function, in the evaluation of new research on nutritional needs. The board has published revisions of the standards in 1945, 1948, 1953, 1958, 1963, and 1968. The latest revision was released in February 1974.

The formulations designed by the Food and Nutrition Board of the National Research Council were designated "Recommended Dietary Allowances." These were value judgments based on the existing knowledge of nutritional science and subject to revision as new knowledge became available. The allowances, from their beginning, have been primarily intended to serve as guides for planning adequate diets for healthy individuals and population groups. They also serve as guides for interpreting food consumption records of specific groups of the population. If the recommended allowances are used as reference

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This supersedes SW 3ABR62231-2-II-1e, May 1975 materials for interpreting records of food consumption, it should not be assumed that food habits are necessarily poor or that a state of malnutrition exists if the recommendations for each individual nutrient are not met.

The allowances recommended are those which will, in the opinion of the Food and Nutrition Board, maintain good nutritional status in practically all healthy persons in the United States under present conditions of living.

An important objective of the RDA (as these allowances are abbreviated) is to allow and encourage the population of the United States to develop food habits which will allow for greatest dividends in health and in disease prevention. It is important to remember that the RDA is intended for use in the United States under our present living conditions, determined by climate, economic status and our population distribution.

THE REFERENCE MAN AND REFERENCE WOMAN

The RDA is a goal towards which to aim when planning an adequate diet. Naturally, not everyone will have the same nutritional requirements because each individual's body metabolizes food and stores nutrients at different rates. In addition, adjustments must be made in the RDA to allow for body size and changes in activity and environmental temperature.

To aid in applying the RDA, the Food and Nutrition Board adopted the devices of the "reference" man and woman which allows for formulating standard calorie allowances in which certain influences, such as age, weight, activity and environmental temperature, are specified. The "reference" man and woman serve as a base from which adjustments for body size and changes in activity and environmental temperature can be made.

The data on the reference man and reference woman are as follows:

Reference Man - Weighs 70 Kg (or 154 lbs)
*23-50 years of age
Is moderately active
Lives in a temperate climate

Reference Woman - Weighs 58 Kg (or 128 lbs)
*23-50 years of age
Is moderately active
Lives in a temperate climate

NOTE: *AFM 160-8 lists the reference man and woman as 25 years of age; however, this is based on the 1964 RDA revisions. Revisions made in 1974 places the age of the reference man and woman in the 23-50 year range.

In the RDA table on page 3 of this study guide, the figures for the 23-50 year age group for both males and females represents the RDA for the "reference" man and "reference" woman, respectively.

FOOD AND NUTRITION BOARD, NATIONAL ACADEMY OF SCIENCES–NATIONAL RESEARCH COUNCIL RECOMMENDED DAILY DIETARY ALLOWANCES,[a] Revised 1974

Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

								Fat-Soluble Vitamins				Water-Soluble Vitamins							Minerals					
	Age	Weight		Height		Energy	Protein	Vitamin A Activity		Vitamin D	Vitamin E Activity[e]	Ascorbic Acid	Folacin[f]	Niacin[g]	Riboflavin	Thiamin	Vitamin B_6	Vitamin B_{12}	Calcium	Phosphorus	Iodine	Iron	Magnesium	Zinc
	(years)	(kg)	(lbs)	(cm)	(in)	(kcal)[b]	(g)	(RE)[c]	(IU)	(IU)	(IU)	(mg)	(μg)	(mg)	(mg)	(mg)	(mg)	(μg)	(mg)	(mg)	(μg)	(mg)	(mg)	(mg)
Infants	0.0–0.5	6	14	60	24	kg × 117	kg × 2.2	420[d]	1,400	400	4	35	50	5	0.4	0.3	0.3	0.3	360	240	35	10	60	3
	0.5–1.0	9	20	71	28	kg × 108	kg × 2.0	400	2,000	400	5	35	50	8	0.6	0.5	0.4	0.3	540	400	45	15	70	5
Children	1–3	13	28	86	34	1,300	23	400	2,000	400	7	40	100	9	0.8	0.7	0.6	1.0	800	800	60	15	150	10
	4–6	20	44	110	44	1,800	30	500	2,500	400	9	40	200	12	1.1	0.9	0.9	1.5	800	800	80	10	200	10
	7–10	30	66	135	54	2,400	36	700	3,300	400	10	40	300	16	1.2	1.2	1.2	2.0	800	800	110	10	250	10
Males	11–14	44	97	158	63	2,800	44	1,000	5,000	400	12	45	400	18	1.5	1.4	1.6	3.0	1,200	1,200	130	18	350	15
	15–18	61	134	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	1,200	1,200	150	18	400	15
	19–22	67	147	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	800	800	140	10	350	15
	23–50	70	154	172	69	2,700	56	1,000	5,000		15	45	400	18	1.6	1.4	2.0	3.0	800	800	130	10	350	15
	51+	70	154	172	69	2,400	56	1,000	5,000		15	45	400	16	1.5	1.2	2.0	3.0	800	800	110	10	350	15
Females	11–14	44	97	155	62	2,400	44	800	4,000	400	12	45	400	16	1.3	1.2	1.6	3.0	1,200	1,200	115	18	300	15
	15–18	54	119	162	65	2,100	48	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	1,200	1,200	115	18	300	15
	19–22	58	128	162	65	2,100	46	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	800	800	100	18	300	15
	23–50	58	128	162	65	2,000	46	800	4,000		12	45	400	13	1.2	1.0	2.0	3.0	800	800	100	18	300	15
	51+	58	128	162	65	1,800	46	800	4,000		12	45	400	12	1.1	1.0	2.0	3.0	800	800	80	10	300	15
Pregnant						+300	+30	1,000	5,000	400	15	60	800	+2	+0.3	+0.3	2.5	4.0	1,200	1,200	125	18+[h]	450	20
Lactating						+500	+20	1,200	6,000	400	15	80	600	+4	+0.5	+0.3	2.5	4.0	1,200	1,200	150	18	450	25

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[a] The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for more detailed discussion of allowances and of nutrients not tabulated. See Table I (p. 6) for weights and heights by individual year of age.

[b] Kilojoules (kJ) = 4.2 × kcal.

[c] Retinol equivalents.

[d] Assumed to be all as retinol in milk during the first six months of life. All subsequent intakes are assumed to be half as retinol and half as β-carotene when calculated from international units. As retinol equivalents, three fourths are as retinol and one fourth as β-carotene.

[e] Total vitamin E activity, estimated to be 80 percent as α-tocopherol and 20 percent other tocopherols. See text for variation in allowances.

[f] The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay. Pure forms of folacin may be effective in doses less than one fourth of the recommended dietary allowance.

[g] Although allowances are expressed as niacin, it is recognized that on the average 1 mg of niacin is derived from each 60 mg of dietary tryptophan.

[h] This increased requirement cannot be met by ordinary diets; therefore, the use of supplemental iron is recommended.

Major Changes to the 1974 Revisions

The 1974 revisions were few in comparison to previous revisions, but are still significant. The energy requirements (calories) have been lowered as have Protein, Vitamin C, Vitamin A, Vitamin E and Vitamin B_{12}. Zinc is added for the first time.

Energy requirements for the typical American activity have been continually lowered in the last several RDA revisions. Since many Americans do not participate in recreational or other energy-requiring activities apart from work, surplus of energy absorbed (calories) is stored as fat. The total life pattern of individuals may be lightly active or virtually sedentary. The typical woman of reference body weight (age 23-50) would expend about 2,000 calories per day and the typical man (age 23-50) 2,700 calories. This reduces the caloric requirement for men by 100 calories from the 1968 revisions, but remains the same for women. Recommended allowances for energy are, therefore, estimates of the average needs of population groups, not recommended intakes for individuals.

The protein allowance for adults was reduced from 0.9 grams per kg of body weight in 1968 to 0.8 grams per kg of body weight per day in 1974. For a 70-kg man, this is 56 gms per day, for a 58-kg woman, this is 46 gms per day. There is little evidence of nutritional benefit from intakes of protein that exceed requirements, nor is there evidence that intakes double or triple the recommended allowances are harmful.

Ascorbic acid (Vitamin C) allowance for adults was reduced from 55 mg for women and 60 mg for men in 1968 to 45 mg per day for both men and women. This reduction still leaves the allowance well above those of Canada, Britain and FAO/WHO of the United Nations. A daily intake of only 10 mg of ascorbic acid is sufficient to alleviate and cure the clinical signs of scurvy in humans, although this limited amount may not be satisfactory for the maintenance of optimum health over long periods of time.

Vitamin A requirements have been changed from 5,000 I.U. for men and women in 1968 to 5,000 I.U. for men and 4,000 I.U. for women. In the past, the allowances for mature men and women have been the same, with no apparent justification. Based primarily on the significant differences in desirable body weights, the allowance for women is now 20 percent lower than that for men.

The Vitamin E allowance was reduced from 30 I.U. for men and 25 I.U. for women to 15 I.U. for men and 12 I.U. for women. In the U.S., the Vitamin E content of diets varies widely, depending primarily on the amount and types of fat consumed (i.e. animal and vegetable fat) and the proportions in which they are consumed. The dietary requirement for Vitamin E increases when the intake of polyunsaturated fatty acids increases. It is assumed that the ratio of Vitamin E to polyunsaturated fatty acids in normal diets is adequate. If, for therapeutic or other reasons, individuals consume excessive amounts of a vegetable oil for long periods of time, then suddenly stop this intake, a state of relative deficiency of Vitamin E could develop.

The Vitamin B_{12} allowance was added in 1968. In 1974 it was reduced from 5 mcg per day to 3 mcg per day for all adults. This recommendation is based on information about Vitamin B_{12} absorption requirements of pernicious anemia patients and the results of recent studies of Vitamin B_{12} turnover in human subjects.

Zinc is the only nutrient that has been added to the list of Recommended Dietary Allowances in the 1974 revisions. Relatively large amounts of zinc are deposited in bones, but these stores do not move into rapid equilibrium with the rest of the organism. The body pool of available zinc appears to be small and to have a rapid turnover. Decreases of zinc in the diet result in loss of appetite, failure to grow, decreased taste acuity and impaired wound healing. There are wide areas within the United States in which the soil is deficient in available zinc. The zinc intake should come from a balanced diet containing sufficient animal protein. Meat, liver, eggs and seafood (particularly oysters) are good sources of available zinc, followed by milk and whole grain products such as whole wheat or rye bread, oatmeal, whole corn. The zinc content of most drinking water is negligible.

Almost all age groupings in the 1974 revisions have been changed. All the allowances have been adjusted to fit the new age groupings. The broader age groups are considered more realistic than narrow age groupings which imply accuracy of knowledge of nutritional needs greater than actually available.

We have talked about what the RDA is, but it is important that these allowances are used correctly, as they were intended to be used, for they are often misused and misquoted. Among errors made in using and quoting the RDAs are:

1. That everyone needs to consume the recommended amounts of nutrients.

Keep in mind that the present knowledge of nutritional needs is incomplete. While a diet made up of ordinary foods meeting the RDA should maintain health, the quantities of some nutrients recommended as adequate are less than the amounts regularly consumed and considered highly desirable by the majority of the U.S. population. There is much more to consider in formulating and evaluating diets than simply computing the amounts of nutrients needed to meet the RDA standard.

2. That diets lower in nutrients than specified in the RDA are "deficient."

The RDA are recommendations for the amounts of nutrients that should be consumed daily, based on average population groups in this country. They are neither estimates of the amounts of nutrients needed per capita in the national or local food supply. Thus, loss of nutrients that occur during the processing and preparation of food should be taken into consideration in planning diets based on tables of food composition.

3. That the RDA is the same as "requirements."

Differences in the nutrient requirements of individuals that are derived from differences in their genetic makeup are ordinarily unknown. Therefore, as there is no way of predicting those individuals whose needs are high and those whose needs are low, RDA (except for calories) are estimated to exceed the requirements of most individuals, and thereby ensure that the needs of nearly all are met. The RDA are not requirements; THEY ARE RECOMMENDATIONS DIRECTED TOWARD INSURING THE NUTRITIONAL HEALTH OF GROUPS.

4. That all who adhere to RDA amounts will be well nourished

or

5. That the RDA amounts are those to be found in a "balanced" diet.

RDA are intakes of nutrients that meet the needs of healthy people and do not take into account special needs arising from infections, metabolic disorders, chronic diseases or other abnormalities that require special dietary treatment. These must be considered as unique clinical problems that require individual attention. RDA are estimates of "acceptable daily nutrient intakes" in the sense that, although the needs of most individuals will be less than the RDA standard, there may be a small number that require more.

6. That if a person consumes only the RDA amounts he will not become obese.

Nutritional requirements differ among individuals and from time to time in a given individual. They differ with age, sex, body size, physiological state and genetic makeup. Some are further influenced by how active a person is and by the environment in which he lives. Individual differences in requirements due to differences in genetic makeup are taken into account in setting the allowances. Rather broad age and weight groups have been used, and modifications required under special circumstances have not been listed. Recommend allowances for energy (calories) are estimates of the average needs of population groups, not recommended intakes for individuals. Energy needs for an individual must be determined on an individual basis.

7. That nutrients not listed in the RDA are not important.

Present knowledge of nutritional needs is far from complete. The exact role that many nutrients play in the body have not yet been determined. As research discovers and justifies new requirements, they are added to the RDA. RDAs have been established for only about one-third of the essential nutrients.

8. That an imitation food which contains the RDA nutrients of a natural food is equivalent to the natural food.

RDAs are recommendations for the amounts of nutrients that should be consumed daily, not for the nutrient contents of foods.

9. That habitual intakes of nutrients of a population should be changed to get closer to the RDA.

As energy allowances represent average values for population groups, total energy needs can be estimated directly. It is then necessary to ensure that the foods selected to meet energy needs also provide RDA for other nutrients. Remember that RDAs are estimated of adequate intakes of nutrients; therefore, the losses of nutrients that occur during the processing and preparation of foods must be taken into account when acquisition of food supplies to meet the RDA standard is based on tables of nutrient composition of foods.

DIETARY ALLOWANCES OF OTHER COUNTRIES

The United States is not alone in having a dietary guide. The Canadians have set up their own dietary guides and Great Britain has had dietary standards published since 1933. These standards are intended to maintain good nutrition in representative individuals or groups. They are set up in six activity categories for men and five for women. The recommendations for nutrient levels are like those in the United States. The major exception here is the allowance for ascorbic acid for the adult which is set at 20 mg as compared to our 45 mg. You might think this ironic, considering the prevalence of scurvy in England during World War II. The interesting point here is that 20 mg of ascorbic acid is enough to prevent scurvy, but not enough to maintain optimum health.

The Canadian Council on Nutrition has published a revised standard to be used for groups of healthy individuals. For adults, the standards are set up for three weight levels for men and women, based on desirable weight at 25 years of age.

TABLES OF FOOD VALUES

There are several different methods for calculating nutrient intake. Most methods rely on the use of Food Value Tables to provide the information needed to calculate total nutrient intake. AFM 160-8, pages A1-1 through A1-18, contains one type of Food Value Table providing information on the "Nutritive Values of the Edible Part of Foods." Your text, Normal and Therapeutic Nutrition, by Corinne H. Robinson, provides a similar table as Appendix Table A-1, pages 646-668. A similar table appears in the Air Force diet manual, Applied Clinical Nutrition, AFM 160-8, pages A1-1 through A1-18.

These tables serve as a basis for comparing one food nutrient analysis with another. For example, if you were comparing the vitamin C content of one orange with 1/2 cantaloupe, the Food Value Tables would give you the exact vitamin C content of each. The tables also provide a method of calculating the total adequacy of a diet or an estimation of the diet's adequacy. The tables provide references to answer numerous questions pertaining to the exact nutritive value of foods, and thus are effective in counteracting food misinformation.

QUESTIONS AND PROBLEMS

1. Define the RDA.

2. From the information available on the latest RDA revisions:

   a. Describe the Reference Man:

Age	________	Weight: in pounds	________
Climate	________	in kilograms	________
Activity	________		

   b. Describe the Reference Woman:

Age	________	Weight: in pounds	________
Climate	________	in kilograms	________
Activity	________		

3. Do other countries have Dietary Guides? Yes No

   a. Which ones: ________ and ________.

4. What amount of ascorbic acid is recommended in England? Mg ________

5. The RDA for the United States sets requirements of ascorbic acid at ________mg.

6. AFM 160-8, Applied Clinical Nutrition, contains information from the ________ (year) revisions of the RDA.

7. The latest RDA revisions were made in ________ (year).

8. If you were required to calculate nutrients for a patient, would you use information from the RDA listed in AFM 160-8 or from the latest revision? ________

9. From the latest RDA revisions, protein requirements for adults is determined to be ________gm/kg of body weight. Previous to 1968, the requirement was established at ________gm/kg of body weight.

10. Briefly discuss "Tables of Food Values." Complete the following sentences:

    a. The table serves as a basis for ________

    ____

    b. Provides a means whereby the adequacy ________

    ____

    ____

    ____

c. The Tables provide a ready reference to answer ______________________________

____

____

____

11. List and explain four adjustments that must be made in the RDA of individuals when they differ from the Reference Man or Reference Woman.

a. ______________________ ______________________

b. ______________________ ______________________

c. ______________________ ______________________

d. ______________________ ______________________

PROJECT I
DIETARY EVALUATION

OBJECTIVE

When you complete this workbook, you will be able to do a dietary evaluation.

STANDARD OF PERFORMANCE

All calculations must be expressed as they appear in the original table. Mathematical calculations must be exact.

PROCEDURE

1. Caution: Read the directions carefully and double check all calculations.

2. Use the copy of the RDA on page 3 of this study guide and workbook and the daily menu on page 10.

3. The Table of Food Values to be used is Appendix Table A-1, Nutritive Value of the Edible Part of Foods, pages 646 to 668 in the Normal and Therapeutic Nutrition text. Record the line number of the food items used in the first column of the table.

4. Calculate the nutritive values for each food on the diet by multiplying or dividing the values for the stated portion in Appendix Table A-1 by the amounts actually eaten. For example, if three cooked prunes are eaten, all nutritive values shown in the Table would be multiplied by 1/6 since the values are given for 17 or 18 prunes.

5. When recording your results, carry out your answers to 3 decimal places. Round off to 3 places where necessary. For example, .27 ÷ 2 = .135; 33 ÷ 2 = 16.5; .365 ÷ 2 = .1825, rounded off to .183.

6. Record all data so that numbers are legible and digits and decimal points are aligned. For example:

```
 10.1   is the correct way, not 10.1
276.                            276.
   .369                         .369
```

7. Total the amount of each nutrient.

8. Compare the actual totals of the diet with the RDA for the Reference Man and Woman. Record the differences in the spaces provided being sure to record whether the amounts of nutrients consumed were in excess (+) or inadequate (-) to meet the RDA.

DAILY MENU

Meal & Line No.	Food	Amount	Food Energy	Protein	Fat	CHO	Iron	Vit A	Thia	Ribo	Niac	Vit C
Breakfast 73	Boiled Egg	1 lg.	80	6	6	trace	1.1	590	0.05	0.15	trace	-0-
	Bacon	3 sl.										
354	Toast	1 sl.										
	Fresh O. J.	8 oz.										
TOTAL												
Lunch	Fried Chicken	3.3 oz.										
	Baked Potato	1 med.										
215	Cooked Peas	1/2 c.										
392	Cake Plain	1 pc.										
	Whole Milk	8 oz.										
TOTAL												
Supper 86	Sirloin Steak	3 oz.										
	French Fries	10 pcs.										
	Canned Corn	1/2 c.										
	Fresh Apple	1										
TOTAL												
RDA	Man											
RDA	Woman											
DIFFERENCE	Man											
DIFFERENCE	Woman											

281

230

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STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-1f

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

NORMAL NUTRITION
(DIGESTION AND ABSORPTION)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

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Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-1f
September 1975

NORMAL NUTRITION

(DIGESTION AND ABSORPTION)

OBJECTIVES

Upon completion of this study guide and workbook, you will be able to:

1. Identify the organs and associate organs of digestion and describe their functions.

2. Describe the role of enzymes in digestion.

3. Discuss the process of digestion and absorption.

4. Discuss nervous control of the digestive system.

INTRODUCTION

In energy metabolism you saw than an individuals age, body size, and activity all contribute to energy requirements. Man must have fuel to carry on the voluntary and involuntary work of the body. Most of the food eaten cannot be used directly by the cells of the body; therefore, the ingested food must first be prepared so it can be used by the cells. This preparation of the food is called the process of digestion. Once you understand the chemical and physical changes that foods must undergo and how these changed foods are used by the body, then you can appreciate the importance of food as fuel for man's existence.

READING ASSIGNMENT

Normal and Therapeutic Nutrition, 14th Edition, by Corinne Robinson, Chapter 2, pages 17-28.

INFORMATION

Digestion can be defined as the process or act of converting food into materials fit to be absorbed and assimilated by the body. This conversion

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This supersedes SW 3ABR62231-2-II-1f, May 1975 of food into nutrients usable by the body takes place in the alimentary canal.

The alimentary canal is also referred to as the digestive tract or gastrointestinal (GI) tract. The alimentary canal is a muscular, membraneous "tube" that extends throughout the length of the body trunk. This "tube" is very coiled and folded repeatedly into the abdominal region, and, in its entirety, attains a length of about thirty feet.

The walls of the alimentary canal consist of a secreting and absorbing mucous membrane layer and two layers of muscle. The muscular layers contribute to the wave-like contractions, called peristaltic waves, which move the food through the digestive system.

Conversion of food into nutrients usable by the body is a complicated process which requires the cooperation of all the organs and associate organs of digestion which make up the alimentary canal. In the following paragraphs you will learn each of these organs and their function in digestion.

ORGANS AND ASSOCIATE ORGANS OF DIGESTION

1. Oral Cavity (Mouth) - Both chemical and mechanical digestion begins in the oral cavity. The oral cavity is composed of the following parts:

a. Teeth - Usually 32 in the adult, arranged in two rows of 16 each. The teeth are important in the process of mastication (tearing and grinding) of the food, a necessity for efficient digestion.

b. Tongue - A muscular structure concerned with manipulation of food in the oral cavity. The tongue aids mechanically in the chewing and swallowing of food. The taste buds of the tongue, along with the nose, are involved in tasting the food.

c. Salivary glands - There are three pairs of salivary glands located in the walls of the oral cavity. These glands secrete saliva, which is 99.5% water. The other 0.5% is composed of ptyalin, which contains the enzyme, amylase, and a substance known as mucin. The amylase works to breakdown carbohydrates (starches) to simple sugars. Mucin moistens and softens the food for ease in swallowing. The food, when ground and mixed with saliva, is called the bolus.

(1) Parotid glands - The largest of the salivary glands; secretes ptyalin which acts to change cooked starch to simple sugars. This breakdown of carbonydrate is actually the only chemical digestion that takes place in the oral cavity (the mouth).

(2) Sublingual glands - Secretes mucin, a protein substance, that makes particles of food stick together and lubricates the food for easier swallowing.

(3) Submaxillary glands - The smallest of the salivary glands; secretes both mucin and ptyalin.

d. Pharynx (throat) - The common passageway for air and food. The pharynx is a muscular-walled structure connecting the mouth and esophagus. The epiglottis (part of the larynx) is a piece of cartilage, a thin flap-like structure, which plays an important role during swallowing. When an individual swallows, the epiglottis closes off the opening to the respiratory system (the trachea), thereby preventing aspiration of food material. When an individual breathes, the epiglottis closes off the esophagus.

2. Esophagus - The esophagus, a tube approximately 10 inches long, connects the pharynx with the stomach. The bolus, food ground and mixed with saliva, passes from the pharynx, over the epiglottis, and into the esophagus. The walls of the esophagus (and the entire alimentary canal) contain two types of muscle tissue: muscle fibers that run in a circular direction and muscle fibers that run in a longitudinal direction.

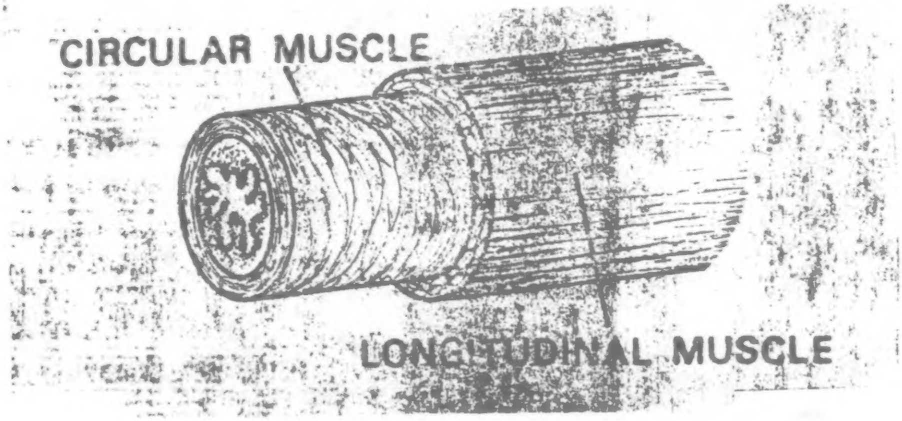

Figure 1 - Cross Section of the Esophagus

When the circular fibers contract, the squeezing process results in the food being broken into smaller pieces and mixed with digestive juices. The contractions of the longitudinal fibers cause the food mass to be pushed on through the tract. The coordinated movement results in a wave-like motion, called peristalsis, which forces the food down the esophagus and into the stomach.

Before the bolus enters the stomach, it passes through a circular ring or band of muscle called the cardiac sphincter. The cardiac sphincter is the upper opening of the stomach, and is so named because it is located immediately below the heart. This valve acts similarly to purse strings, opening and closing to let measured amounts of food into the stomach.

3. Stomach (gastr) - The stomach is shaped like a "J" and has three areas of activity: the fundus (top area), the corpus or body (middle area), and the pyloric antrum (the third area). The capacity of the stomach is approximately one to four quarts.

a. Fundus - Food is held in the fundus for approximately 30 minutes to two hours. You should know that not all of the food is automatically dumped into the stomach at one time. At first the food you eat moves into the stomach by being pushed downward by more food. After some food has entered the stomach and digestion starts, the quantity entering and rate of movement through the stomach are controlled by the amount of digestion taking place. Liquids and carbohydrates digest more rapidly than proteins and fats, so would stay for a shorter length of time in the stomach. In the fundus, tonus waves (similar to peristaltic waves) churn and mix the food with gastric juices and the bolus is changed to chyme (pronounced "kime", not "chime"). Chyme has a thin, soup-like consistency.

b. Corpus (the body or middle area of the stomach) - The chyme is mixed with hydrochloric acid and enzymes for active chemical digestion of protein to begin. The chyme then moves on to the:

c. Pyloric antrum - This portion derives its name from the sphincter muscle located at the end of the stomach. In this area, more gastric juices are mixed with the chyme. The peristaltic movement of the stomach can be very active, particularly in the area of the pyloric antrum. Because of the excessive activity in this area, it is necessary to have a valve between the pylorus and the small intestine to prevent the backflow of material from the small intestine into the stomach. This valve is called the pyloric sphincter valve.

4. Small Intestine - This area of the digestive tract is approximately 22 feet in length and is divided into three segments: the duodenum, the jejunum, and the ileum. It is one of the most important parts of the digestive tract because most digestion and absorption take place here.

a. Duodenum - The first segment of the small intestine is approximately 10 inches long. The majority of chemical digestion occurs in this segment for two reasons: First, the food material (chyme) in the stomach and small intestine has been adequately broken down mechanically; Second, the associate organs of digestion empty their digestive juices into the duodenum by way of the common bile duct. The importance of these reasons are discussed in the following paragraphs.

(1) Liver (hepat) - The largest gland of the body, located in the upper right area of the abdomen. Among the most important functions of the liver is the production of bile. Bile aids in emulsifying fats for more rapid reaction with enzymes. The liver also stores carbohydrate as glycogen until it is needed for energy. In addition, the liver stores vitamins and iron and detoxifies harmful substances found in food or produced by the body. (Detoxifies means that the properties harmful to the body are removed).

(2) Gallbladder - Located on the under surface of the liver. This organ stores and concentrates the bile produced by the liver. Concentration occurs by removing a portion of the fluid content.

(3) Pancreas - This gland produced two substances: pancreatic juices and insulin. Pancreatic juices contain digestive enzymes that work on carbohydrates, proteins, and fats, and complete the digestive process. These juices are the only ones containing all three types of enzymes. The Islets of Langerhans, cells distributed througout the pancreas, produce insulin which is a hormone concerned with sugar (carbohydrate) metabolism. You will hear of insulin frequently when working with diabetic diets. Insufficient production of insulin results in the disease, diabetes mellitus.

b. Jejunum - The middle segment of the small intestine is approximately 8 to 10 feet in length. Most nutrient absorption occurs here as the complex foods have been chemically digested to the form in which they can be absorbed. In addition, the structures for absorption are located in the jejunum, ileum, and large intestine. These are called villi. Villi are tiny, finger-like projections which line the walls of the intestines. Peristaltic waves carry the chyme through the jejunum and ileum. The chyme moves all around the villi and the blood and lymph capillaries of the villi absorb the nutrients which are now in their simplest form. Absorption will be discussed later in this study guide.

c. Ileum - The third segment of the small intestine is approximately 12 to 14 feet in length. Absorption of nutrients continues and absorption of fluids from the chyme starts here though this fluid absorption is not nearly so great as that which occurs in the large intestine.

5. Large Intestine - The large intestine is approximately 5 feet long and has three segments, the cecum, colon, and rectum.

a. Cecum - The blind-end of the large intestine which receives the chyme from the ileum. The cecum offers the last chance for nutrients to be absorbed during the digestive process. Once food enters the cecum through the ileo-cecal valve, it cannot back-up into the ileum.

The appendix is a small appendage extending off the cecum. It contains lymphatic tissue and serves no known function in modern man. However, inflammation of the appendix, appendicitis, may become a serious condition due to its complications.

b. Colon - The portion of the digestive tract that carries fecal material from the cecum to the rectum. The colon absorbs fluids, and under normal conditions, the fluid intake is so regulated as to leave the feces in the proper consistency for expulsion. You should keep in mind, however, that failure to reabsorb fluid produces diarrhea and excessive reabsorption of fluid produces constipation. The colon has four sections.

(1) Ascending colon - Passes up the right side of the abdomen to reach the liver, at which point it turns to the left to become the:

(2) Transverse colon - Crosses the abdomen approximately one inch above the navel, from right to left. When it reaches the general area of the spleen, it turns downward to become the:

(3) Descending colon - Passes down the left side of the abdomen until it reaches the hip bone or pelvis, where it starts to turn and become the:

(4) Sigmoid colon - Passes posteriorly and medially. When the colon reaches the posterior end of the pelvis, it curves downward for a short distance and leads into the:

c. Rectum - This portion of the large intestine acts as a temporary storage place for fecal material. When adequate fecal material has been collected to stimulate the nerves in the walls of the rectum, a message to the brain stimulates the anus and allows expulsion of the waste as feces. The anus refers to the anal valve rather than a section of the large intestine.

THE ROLE OF ENZYMES IN DIGESTION

Enzymes are complex chemical substances, produced by the organs and associate organs of digestion,which act on other substances causing them to split up. An enzyme would be defined as a substance, frequently protein in nature and formed in living cells, which brings about chemical changes but itself is not changed during these chemical reactions. Enzymes aid in the breakdown of the complex carbohydrates to simple sugars, the fats (lipids) breakdown to fatty acids and glycerol, and the proteins breakdown to amino acids.

A distinctive feature of an enzyme is that it is specific; those that act on carbohydrates are not capable of acting on fats or proteins and vice versa. In the new system of enzyme nomenclature, the root of the enzyme name is derived from the substance upon which it acts (the substrate) plus the suffix "ase". Enzymes that subdivide carbohydrate, fat, and protein are called carbohydrases, lipases, and proteinases, respectively. For a specific carbohydrate, such as starch, the root of the enzyme name is derived from the word "amylum" meaning starch, thus amylase is the enzyme acting on starch. The root of disaccharide-splitting enzymes are derived from the sugars themselves, i.e., sucrase, maltase, and lactase. Because the steps in digestion of one nutrient may occur in different parts of the digestive tract, an adjective that describes the source of the secretion is used before the root word to complete the enzyme name. For example, the fat-splitting enzyme which acts in the small intestine is secreted by the pancreas and is called pancreatic lipase. The starch splitting enzyme produced by the salivary glands is called salivary amylase.

The classes of enzymes are specific for specific nutrients. Proteinases cannot react with carbohydrates or fats and lipases cannot react with carbohydrates or proteins. The following show the enzymes, classes of nutrients, and the breakdown products of the reaction.

Carbohydrate + Carbohydrase -----> Monosaccharides

Protein + Proteinase -----> Amino Acids

Fats (lipids) + Lipase -----> Fatty Acids and Glycerol

The length of time that food remains in the stomach differs with the diet and varies widely with individuals. An ordinary meal leaves the stomach in 3 to 4 1/2 hours. Carbohydrates leave most rapidly because chemical digestion starts in the mouth and the foods don't have to remain in the stomach for extended periods while digestion occurs. Protein chemical digestion starts in the stomach so protein foods are next in line after carbohydrates for the length of time they remain in the stomach. Fat digestion occurs in the duodenum after the addition of bile and bile salts to emulsify the fats. (Emulsify means they are broken down into small particles for easier mixing with digestive juices.) This late start at digestion means that fat moves slowly through the stomach. We say that fat has the highest "satiety" value of the three foodstuffs because of the length of time it remains in the stomach. Satiety value refers to the ability of a particular food to satisfy the hunger of an individual. Meals with more fats and solids will keep the individual from becoming hungry for a prolonged period of time. A liquid meal or one which contains a high percentage of carbohydrates will pass rapidly through the digestive system and is said to have a low satiety value.

THE PROCESS OF ABSORPTION

The process of absorption is the taking up of nutrients and fluids from the digestive tract by the lymphatic and circulatory systems. The absorptive area of the walls of the jejunum, ileum, and large intestine are greatly increased by thousands of fine, hair-like projections called villi. Nutrients are absorbed from the digestive tract through the villi. Each villus contains a lymph vessel and blood vessels (arteries and veins), each surrounded by a network of capillaries. Fatty acids and glycerol are absorbed into the lymph capillaries (lacteals) of the villi, and pass into the lymphatic system.

They then proceed to the blood stream where they are routed to the liver for storage or are utilized as energy. Monosaccharides and amino acids are absorbed by the blood capillaries of the villi and empty into the portal vein to be carried directly to the liver for storage or to be used by the body as energy or for building tissue.

NERVOUS CONTROL OF DIGESTION

The entire body is controlled by the nervous system. All areas are under some control so that they may be integrated into the total body activity. The digestive system is no different from any other group of internal organs in that it is controlled by the autonomic division of the nervous system.

The Autonomic Nervous System controls all of the involuntary functions of the body. Divisions of the system are as follows:

1. Sympathetic: Controls the body in times of emergency; emotional state, such as anger, fear, extreme stress, excitement, etc., or physical; such as fighting, sports, running from a bull in a field, etc.

2. Parasympathetic: Controls the body under normal circumstances of day to day living.

The important thing to consider is that when a patient is excited, angry or fearful, the digestive processes are slowed considerably if not stopped completely. If a person is emotionally or physically aroused only those systems required for immediate action are speeded up. The digestive system is not required for emergency action, therefore, it will slow down or stop. When movement (peristalsis) is stopped in the alimentary canal, the chyme is not moved through the stomach and intestines. The chyme contains quantities of digestive enzymes and hydrochloric acid which may irritate the stomach and/or intestine if the individual remains emotionally or physically aroused for prolonged periods of time.

QUESTIONS AND PROBLEMS

1. The first chemical digestion of food takes place in the _________ ___________________________.

2. Name the pairs of salivary glands.

3. Name the areas of the stomach and their functions.

   a.

   b.

   c.

4. What name is given food when it enters the small intestine? Explain the composition and consistency of the food at this stage of digestion.

5. List the segments of the small intestine and their functions.

   a.

   b.

   c.

6. List the areas of the large intestine in their correct order.

7. Describe the functions of villi.

8. Describe the functions of the associate organs of digestion listed below.

   a. Salivary glands

   b. Liver

   c. Pancreas

   d. Gallbladder

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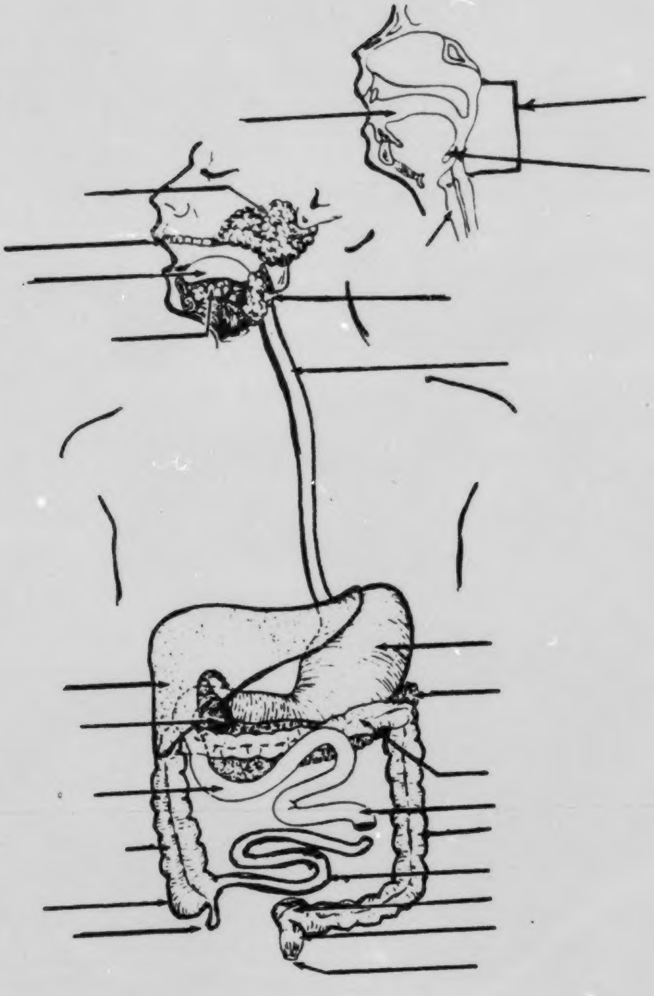
9. Name the three general classes of enzymes, the classes of nutrients upon which they work, and the end products of digestion of theses classes of nutrients.

10. When an individual is emotionally upset during a meal, the digestive processes are speeded up/slowed down. (Circle the correct answer).

11. Chyme in the stomach and intestine contains ____________________ and

__________________ __________________ which could irritate the lining of the digestive tract and cause ulcers if an individual is emotionally upset for prolonged periods of time.

12. Label the parts of the digestive system shown on page 12.



STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-2a

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

APPLIED CLINICAL NUTRITION
(INFLIGHT FEEDING)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF

SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

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Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-2a
September 1975

APPLIED CLINICAL NUTRITION

(INFLIGHT FEEDING)

OBJECTIVES

After completion of this study guide and workbook you will be able to:

1. Define Aeromedical Evacuation.

2. Explain the types of therapeutic inflight meals.

3. Explain the responsibilities of Medical Food Service in the preparation of cooked therapeutic inflight meals.

4. Explain cooked therapeutic inflight meals (CTIM) and preparation of therapeutic inflight meals.

5. Explain what packaging materials are used for therapeutic inflight meals.

6. Identify regulations pertaining to therapeutic inflight meals.

INTRODUCTION

Throughout the continental United States and overseas, a unique system exists for transferring military patients from one hospital to another or from a hospital in one country to a hospital in another country. This system is called aeromedical evacuation.

It is the policy of the Department of Defense that in both peace and war, the movement of patients of the Armed Forces be accomplished by airlift whenever airlift is available, when conditions are suitable for aeromedical evacuation and when the movement by air is not medically contraindicated.

This supersedes SW 3ABR62231-2-II-2a, May 1975

Generally, all three branches of the military services are charged with the responsibility for some aspect of the aeromedical evacuation process. Specific responsibility at any particular time depends primarily on geographical location and the nature of the requirement. For example:

a. The Military Airlift Command (MAC) is responsible for all domestic (within the continental U. S.) aeromedical evacuation for the United States Armed Forces and for all strategic aeromedical evacuation, except that covered by "d" below.

b. The Army component commander is responsible for providing forward aeromedical evacuation by organic Army aircraft within Army combat zones.

c. The Air Force component commander is responsible for all tactical aeromedical evacuation for the US Armed Forces except that covered by "d" below.

d. The Navy component commander is responsible for aeromedical evacuation within Naval (including Marine) combat areas and over routes of sole interest to the Navy, where the facilities of the Air Force, including MATS, cannot provide the service.

This world-wide aeromedical evacuation system if it were to be seen on a world map, with the flight paths lined out, would appear as a series of wheels with receiving centers occupying the position of the hub and transferring agency feeding lines acting as spokes to complete the wheel.

The aeromedical evacuation service also provides the United States with a unique national resource which is available whenever and wherever needed. It is used for assisting U. S. civilians in emergencies when no other means of suitable patient transportation is available.

In short and unofficially you could say the mission of aeromedical evacuation is "to move all patients from a point where they are not receiving adequate definitive care to a point where they can receive that care by means of airlift; while providing them with adequate supportive care en route."

AIR EVACUATION

Air evacuation was first used by the military during the Franco-Prussian War. In 1870-1871, during the siege of Paris, 160 patients were successfully evacuated by balloon.

During World War I (1914-1918) aeromedical evacuation was used to a limited degree. In most cases the patient was wedged into the narrow cockpit of the open plane and had to be kept in a sitting position.

In 1918 a JN-4 "Jenny" was converted into an airplane ambulance. Its practical use began the first aeromedical evacuation of patients in the United States.

During the last two and one-half years of World War II approximately 1,172,000 sick and wounded were transported by the Army-Air Force in all theaters of operation. Cargo aircraft of all types (C-46s, C-47s, C-54s, and C-121s) were used to transport battle casualties.

Air evacuation of patients during the Korean Conflict succeeded famously. Helicopters lifted the wounded from near the front lines to airstrips in the rear areas. Physicians, nurses and medical technicians cared for these patients aboard troop carrier planes carrying them from Korea to Japan. Military Air Transport Service planes and medical teams hurried them home across the Pacific. During the Korean conflict 95 percent of all medical evacuations were by air.

The largest and most notable evacuation occurred in December 1950 when American Marines, fighting in bitter, below-zero weather in North Korea, were surrounded by Communist Chinese. In a hazardous five-day airlift, C-47s evacuated 4,689 casualties over enemy lines to medical care and safety.

The Surgeon General credited air evacuation with being a major cause of the low death rate among American soldiers during the Korean Conflict. Deaths fell from 4.5 per 100 injured men who reached aid stations in World War II, to 2 per 100 in Korea. The increased use of blood and its derivatives and new drug therapy were other chief causes for this improvement.

The Aeromedical Evacuation System operates the world's safest air transport service - its record speaks for itself. Furthermore, there is no safer means available of transporting patients - either in the air or on the surface. Both of these statements are true but we are speaking in generalities. Whether air evacuation is safe for a particular patient depends on the patient's condition and other factors. Thus, the selection of patients for air evacuation is an extremely important step and is the responsibility of the originating facility.

INFORMATION

The following terms are used several times during the discussion to follow and are defined here for your convenience. You will become considerably more familiar with them if you are assigned to a hospital which supports the aeromedical evacuation system.

1. Aeromedical Evacuation - The movement of patients under supervision to and between medical treatment facilities by air transportation. Abbreviated: A/E

2. Aeromedical Evacuation Control Center (AECC) - Is the control facility established by the commander of an airlift force. This center operates in conjunction with airlift control center (ALCC) and coordinates overall medical capability with airlift control elements (ALCE) for effective use of airlift capability. The center also assigns medical missions to appropriate aeromedical evacuation elements in the system and monitors patient movement activities.

3. Aeromedical Evacuation Systems - Patient Movement Systems established by the Air Force to accomplish the movement of patients by aircraft. Major components are:

a. Centralized control of patient movement by air transport.

b. Specialized medical attendants and equipment for inflight medical care.

c. Facilities on, or in the vicinity of, airstrips and air bases for the limited medical care of patients entering, enroute or leaving the system.

d. Communications with destination and enroute medical facilities concerning patient airlift.

4. Aeromedical Staging Unit - A medical unit operating transient patient beds located on, or in the vicinity of an enplanning and deplanning air base or airstrip, that provides for the reception, administration, processing, ground transportation, feeding and limited medical care for patients entering, enroute, or leaving an aeromedical system.

5. Domestic Aeromedical Evacuation System - A portion of the total aeromedical evacuation system which provides aeromedical evacuation of patients from aeromedical staging facilities at aerial ports to hospitals of final destination and between medical treatment facilities within the United States.

6. Aeromedical Evacuation Coordinating Officer - An officer of an originating, intransit, or destination medical facility who coordinates aeromedical evacuation activities of the facility.

7. Originating Medical Facility - A medical facility that initially transfers a patient to another medical facility.

8. Destination Medical Facility - The medical facility to which the patient is being transferred.

9. Emergency Aeromedical Evacuation - The airlift of patients who must be moved immediately and who must normally be given an urgent priority for air movement to save life or limb or to prevent complications of a serious disease.

10. Intransit Aeromedical Evacuation Facility - A medical facility on or in the immediate vicinity of an airfield, which is staffed and equipped to provide for the reception and dispatch, ground transportation, limited medical care, food service, and administrative processing for patients awaiting aeromedical evacuation or intransit in the aeromedical evacuation system. Although the term is reserved for those facilities which are specifically designated for this purpose, it should be understood that many of our other facilities are called upon from time to time to provide medical care and other support to patients enroute to other facilities whenever it becomes necessary for them to remain over night (RON) at a location where an intransit aeromedical evacuation facility is not established.

The above terms should help you as a diet therapy specialist to be more familiar with some of the terminology used in the aeromedical evacuation system.

As you have probably assumed by now some of the flights are very long and patients aboard the aircraft must be furnished adequate nourishment. All of the patients however will not be on regular diets, therefore, therapeutic diets must be provided.

Patients traveling through the aeromedical evacuation system obviously have special requirements imposed if they are on a therapeutic diet of any type. A liberal policy toward therapeutic diets is recommended since most patients spend a relatively short period of time in transit. Food service facilities on aircraft are limited and food items selected for inclusion in inflight meals must be of a nonperishable nature.

THERAPEUTIC INFLIGHT MEALS

The two major types of therapeutic inflight meals are the box type and the CTIM. Each are explained below:

1. Box type - The box-type inflight meal consists basically of sandwiches, dessert, milk, beverage, and additional items such as relishes, salads, condiments and tableware. Without refrigeration consumption of box lunches is required within five (5) hours because of the danger of bacterial growth. With refrigeration the total time from preparation to consumption must not exceed 24 hours. The five hour limit restricts the uses of these meals to flights requiring one meal (or to the first meal on a long flight). Although the sandwich meal may be adapted for patients on therapeutic diets, it is not recommended for patients on long or transcontinental flights. Obviously, it would be undesirable to serve patients a sandwich meal for three or four consecutive meals, as could happen on a transoceanic flight with several stopovers.

2. CTIM - CTIM stands for Cooked Therapeutic Inflight Meals. These have been developed to provide a hot meal for patients on therapeutic diets while inflight. A CTIM contains chilled, bite size meat or sauteed chicken, a fresh or canned potato or potato substitute, and a canned vegetable. The CTIM is refrigerated, never frozen. It is served with all necessary supplements for a completely accurate diet. CTIMs are partially cooked and refrigerated, with the final cooking completed aboard the aircraft in the galley.

In the CTIM system all therapeutic diets are planned around four basic dinner and supper menus and one breakfast menu. See Figure 1, Page 8. Selected locations around the globe routinely provide these meals for worldwide aeromedical evacuation flights. See Figure 2 and 3, Pages 9 and 10. The use of four basic dinner menus allows the menu for locations to differ, insuring that patients do not receive the same meal on a continuing flight.

There are many advantages to preparing and loading all the CTIMs at selected locations. Among these are:

a. Uniformity of meals

b. Higher standards of quality

c. More accurate control of therapeutic diets

d. Higher patient morale

e. Ease in serving and lower cost for consolidation and preparation

CTIM meals are always made to order on an as-needed basis. They are never prepared in advance and frozen. A dietitian is assigned periodically as an aircrew member to observe and evaluate the inflight meal service and the quality of the CTIM meals aboard C-9 and C-141 aircraft.

For the CTIM system to function properly accurate diet orders must be received in advance. This involves close coordination between the origination medical facility or ASF, AECC and the designated enroute medical facility. MAC (Military Airlift Command) manual 164-1 describes complete procedures for the planning, serving and calculating of Cooked Therapeutic Inflight Meals. This manual contains a Diet Ordering Guide which is used throughout all ASFs and AECCs to achieve standard diet orders.

Basic Menus

BREAKFAST

Menu 1

Organge Juice or
Tomato Juice

Cheese Omelet

Dinner Roll or
Bread

DINNER AND SUPPER

Menu 2

Pineapple Juice

Chicken with Tomato Marinara Sauce

Whole Potatoes

Canned Peas

Canned Apricots

Menu 3

Apple Juice

Broiled Steak with Jellied Consomme

Mashed Potatoes

Canned Green Beans

Canned Pears

Menu 4

Grape Juice

Sauteed Chicken in white Wine Sauce

Baked Potato

Canned Carrots

Canned Peaches

Menu 5

Apricot Nectar

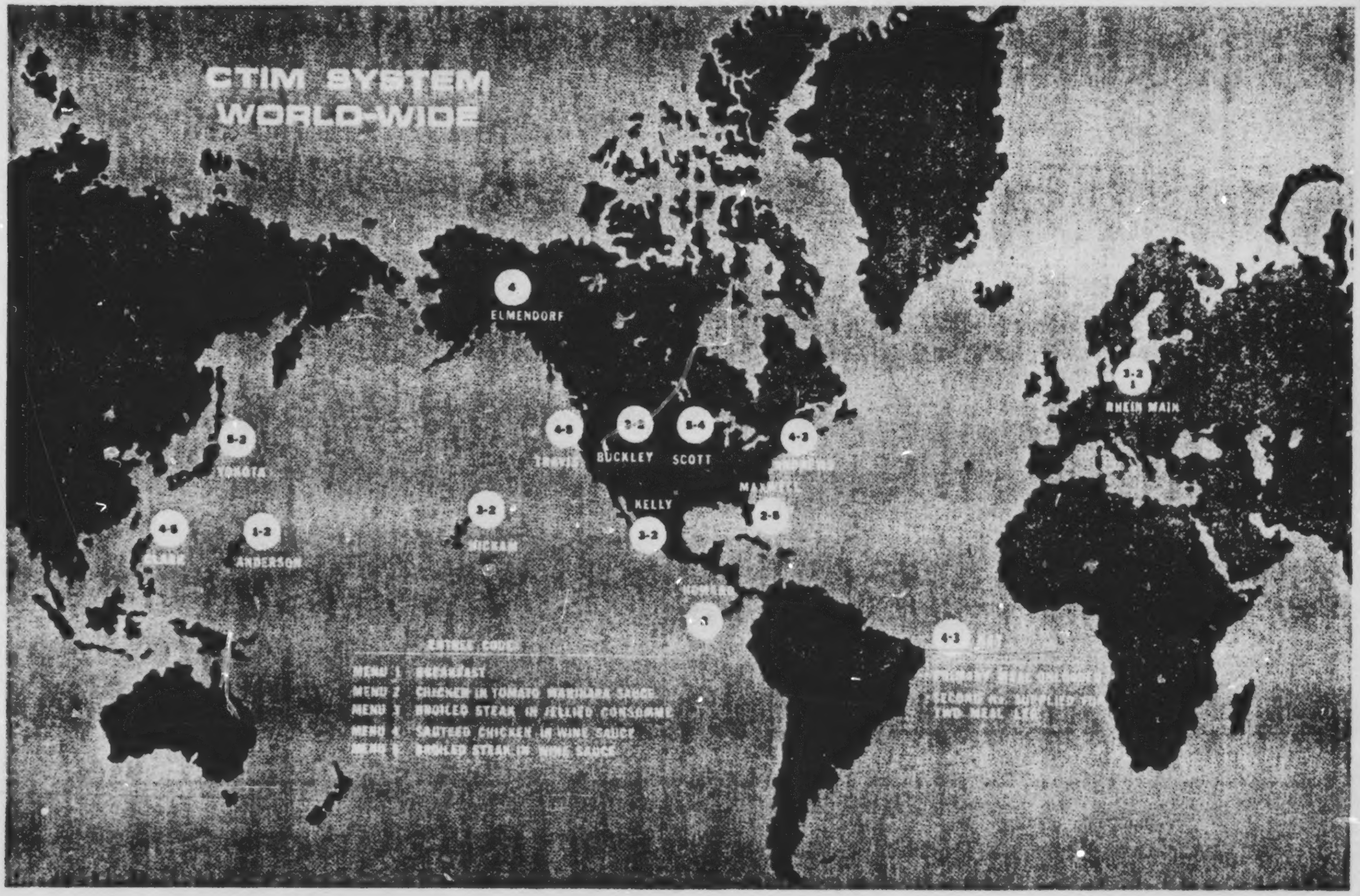
Broiled Steak with Red Wine Sauce

Rice

Canned Wax Beans

Canned Applesauce

Figure 1


CTIM SYSTEM
WORLD-WIDE
4
ELMENDORF
3-2
1
RHEIN MAIN
5-3
YOKOTA
4-5
TRAVIS
3-2
BUCKLEY
5-4
SCOTT
4-3
McGUIRE
MacDILL
KELLY
3-2
HICKAM
4-5
CLARK
1-3
ANDERSON
3-2
2-5
HOWARD
5
4-3
ENTREE CODE:
MENU 1 BREAKFAST
MENU 2 CHICKEN IN TOMATO MARINARA SAUCE
MENU 3 BROILED STEAK IN JELLIED CONSOMME
MENU 4 SAUTEED CHICKEN IN WINE SAUCE
MENU 5 BROILED STEAK IN WINE SAUCE
PRIMARY MENU ON RIGHT
SECOND NO. SUPPLIED FOR
TWO MEAL LEG

304

CTIM SUPPORT SYSTEM

	ONLOAD BASE	MEDICAL FACILITY PROVIDING CTIM
DOMESTIC & OFF-SHORE	1. SCOTT AFB, ILLINOIS	USAF MEDICAL CENTER SCOTT
	2. TRAVIS AFB, CALIFORNIA	DAVID GRANT USAF MEDICAL CENTER
	3. BUCKLEY AFB, COLORADO	FITZSIMMONS GENERAL HOPSITAL (ARMY)
	4. KELLY AFB, TEXAS	WILFORD HALL USAF MEDICAL CENTER
	5. MAXWELL AFB, ALABAMA	USAF REGIONAL HOSPITAL
	6. ANDREWS AFB, MARYLAND	MALCOLM GROW USAF MEDICAL CENTER
	7. HOWARD AB, PANAMA	GORGAS HOSPITAL (PUBLIC HEALTH)
PACIFIC	8. HICKAM AFB, HAWAII	TRIPLER GENERAL HOSPITAL (ARMY)
	9. ANDERSEN AB, GUAM	AGANA NAVAL HOSPITAL
	10. CLARK AB, PHILIPPINE ISLANDS	USAF HOSPITAL CLARK
	11. YOKOTA AB, JAPAN	USAF HOSPITAL TACHIKAWA
	12. ELMENDORF AFB, ALASKA	USAF HOSPITAL ELMENDORF
EUROPE	13. RHEIN MAIN AB, GERMANY	USAF HOSPITAL WIESBADEN 97th GENERAL HOSPITAL (ARMY) - FRANKFURT

Figure 3

MEDICAL FOOD SERVICE RESPONSIBILITIES

Upon notification from AECC or ASF, the diet therapy specialist completes MAC Form 449, CTIM Telephone Diet Order, in duplicate. See Figure 4, Page 11. Diet orders are recorded for patients enplanning at enroute stops as well as ASF patients. Other information includes:

Patient's name

Date of flight

Flight number

Time required

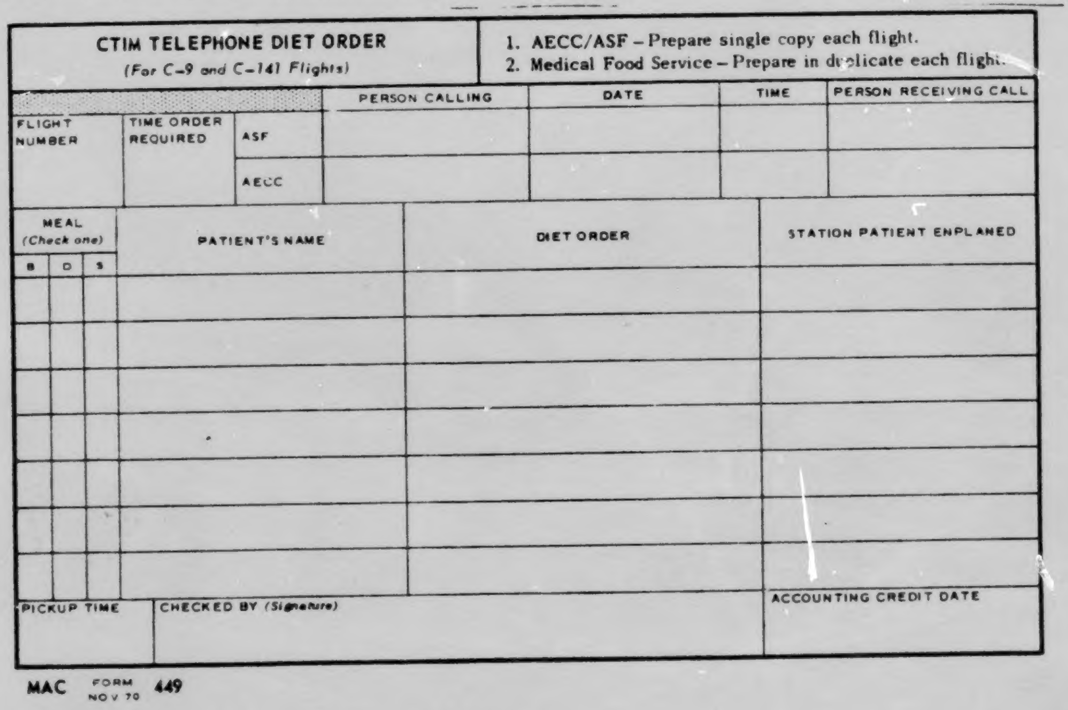
Meal required

Name of the person calling

Name of the person receiving the call

Accounting credit date

The original copy of MAC Form 449 is forwarded so that credit is received for meals prepared. A second copy of the form is filed in the food service activity for informational purposes.



CTIM TELEPHONE DIET ORDER *(For C-9 and C-141 Flights)*	1. AECC/ASF – Prepare single copy each flight. 2. Medical Food Service – Prepare in duplicate each flight.

FLIGHT NUMBER	TIME ORDER REQUIRED		PERSON CALLING	DATE	TIME	PERSON RECEIVING CALL
		ASF				
		AECC				

MEAL *(Check one)*			PATIENT'S NAME	DIET ORDER	STATION PATIENT ENPLANED
B	D	S			

PICKUP TIME	CHECKED BY *(Signature)*	ACCOUNTING CREDIT DATE

MAC FORM NOV 70 449

Figure 4

CTIM MEAL PATTERNS

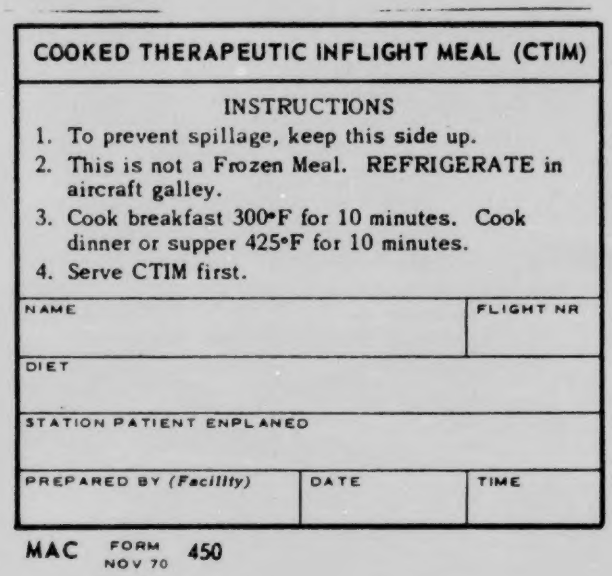
One of the difficulties encountered in planning therapeutic diets for the A/E system is the variation in the diet manuals used through the federal service agencies. Because of special considerations that must be made for patients being moved through such an aeromedical system and because the equipment available for use aboard aircraft is somewhat limited, special meal patterns were developed for the CTIM system.

The five basic menus were designed to establish these meal patterns (Figure 1, Page 8).The patterns are standard and do not vary; only menu items change. These are shown in many pages of attachments in MAC Manual 164-1, which prescribes and defines use and preparation of CTIMs in detail. Errors in therapeutic inflight meals can be eliminated with these standardized patterns.

CTIM CHECKLISTS

Detailed CTIM checklists for all possible therapeutic inflight meals are provided as attachments in MAC Manual 164-1. After you learn therapeutic nutrition you will have a better understanding of the variety of therapeutic diets involved. When a diet order is received, the diet therapy specialist selects the correct checklist to fit the requirements of the therapeutic diet ordered. These checklists follow the meal patterns, and are planned for one breakfast and four dinner/supper meals. The checklist specifies actual food items, exact portion sizes and packaging procedures, and can be used by food service personnel as exact menus in preparing the meals at a specific location. Specific quantities of fat to be used in food preparation as dictated by the diet prescription appear in the checklists but are not necessarily shown in the standardized recipes. If a between meal feeding is required, it is included on the checklist and is prepared at the same time as the meal. In addition, the checklist provides the medical technician aboard the aircraft with guidance in tray assembly and in serving allowed nourishments and condiments.

After the meal is prepared, MAC Form 450 (see Figure 5) is prepared in duplicate. One copy is packaged with the meal, and another copy of the same form is attached to the top of the flight lunch box.



COOKED THERAPEUTIC INFLIGHT MEAL (CTIM)

INSTRUCTIONS

1. To prevent spillage, keep this side up.
2. This is not a Frozen Meal. REFRIGERATE in aircraft galley.
3. Cook breakfast 300°F for 10 minutes. Cook dinner or supper 425°F for 10 minutes.
4. Serve CTIM first.

NAME

FLIGHT NR

DIET

STATION PATIENT ENPLANED

PREPARED BY *(Facility)*

DATE

TIME

MAC FORM NOV 70 450

Figure 5

COOKED THERAPEUTIC INFLIGHT MEALS

Any type of meal prepared for patient inflight feeding should be labeled with the following information.

a. Date and hour of preparation

b. Facility preparing the meal

c. Patient's name and grade

d. Origination and destination of patient

e. Diet order

f. Foods requiring refrigeration

g. Galley instructions, such as oven temperatures and heating times

h. Time before which the meal is to be consumed (box lunch only)

When more than one inflight meal is being prepared, each meal should be packaged separately and clearly labeled. A checklist should be included to indicate:

a. The contents of each meal and any between meal feedings.

b. Unusual meal patterns.

c. Special instructions.

d. Other pertinent information, attached to DD Form 602, Patient Evacuation Tag.

e. Items requiring refrigeration, (such as flavored dessert gelatins for clear liquid diets) should be packaged separately and labeled "Refrigerate".

f. The patient's name and grade should appear on each label.

g. All food items, unless commercially proportioned, should be wrapped to maintain freshness and to prevent spoilage.

PREPARATION OF THERAPEUTIC INFLIGHT MEALS

Meals are made to order on an as-needed basis. When a diet order is received, the cook or other designated personnel selects the correct checklist. If the correct checklist is unavailable, the dietitian or designated representative should be contacted for clarification or calculation. During the preparation of the food according to the standardized recipes and CTIM checklist, steak and chicken are cut bite-size following the proper checklist. The hot food is portioned into a three compartment tray. The preportioned sauce is heated and poured over the bite-size meat. Accessory items and cold food items are assembled, packaged and labeled. Whenever salads are included, the vegetables should be shredded or chopped. Meats are always bite size so that the patient does not need to use a knife to cut the meat. This is difficult if the patient has one arm in a cast, or must remain flat on his back enroute. The tray is covered and marked with the patient's name and diet nomenclature using a felt tip marker. The covered tray is then inserted into the CTIM box prelabeled with one copy of MAC Form 450, Cooked Therapeutic Inflight Meal (CTIM). The checklist is placed in the completed flight lunch box for the information of the medical crew and patient. A second gummed label, MAC Form 450, (Figure 5) is attached to the top of the flight lunch box. Once prepared, the meal is immediately refrigerated to 40°F or less but not frozen. Final cooking is to be completed aboard the aircraft.

CTIM meals (see Figure 6, Page 16) will be served to patients on therapeutic diets aboard the C-141 or the C-9 aeromedical evacuation aircraft. Figures 7 and 8, Pages 17 and 18 show the C-9 and the C-141 galley. When it is time for the meals to be used, they are heated in the galley ovens to the temperature indicated on the instruction list.

Packaging materials for use with the CTIM meals include paper cups with lids, aluminum foil, plastic wrap and plastic bags. Inflight meal boxes and other containers and expendable items may be obtained through normal supply channels. Whenever possible prepackaged food items should be used, such as individual cans of ready-to-eat soup, fruit juice, presealed packages of mustard, mayonnaise, catsup, milk, etc.

The following regulations pertain to therapeutic inflight meals:

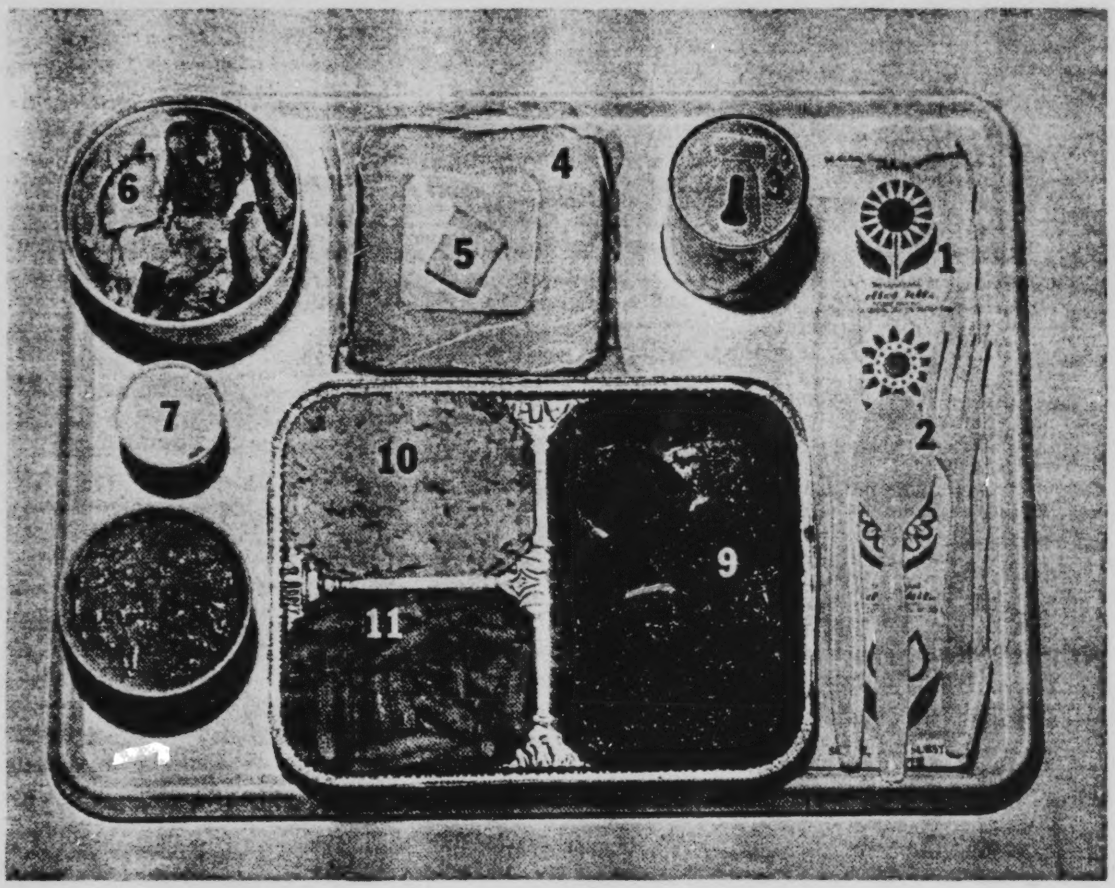
AFM 146-2, Flight Feeding Manual.

AFM 161-1, Flight Surgeons Manual.

AFR 146-16, Flight Meals.

MAC 164-1, Aeromedical Evacuation - Cooked Therapeutic Inflight Meals (CTIM).

AFM 160-8, Applied Clinical Nutrition, Chapter 21.



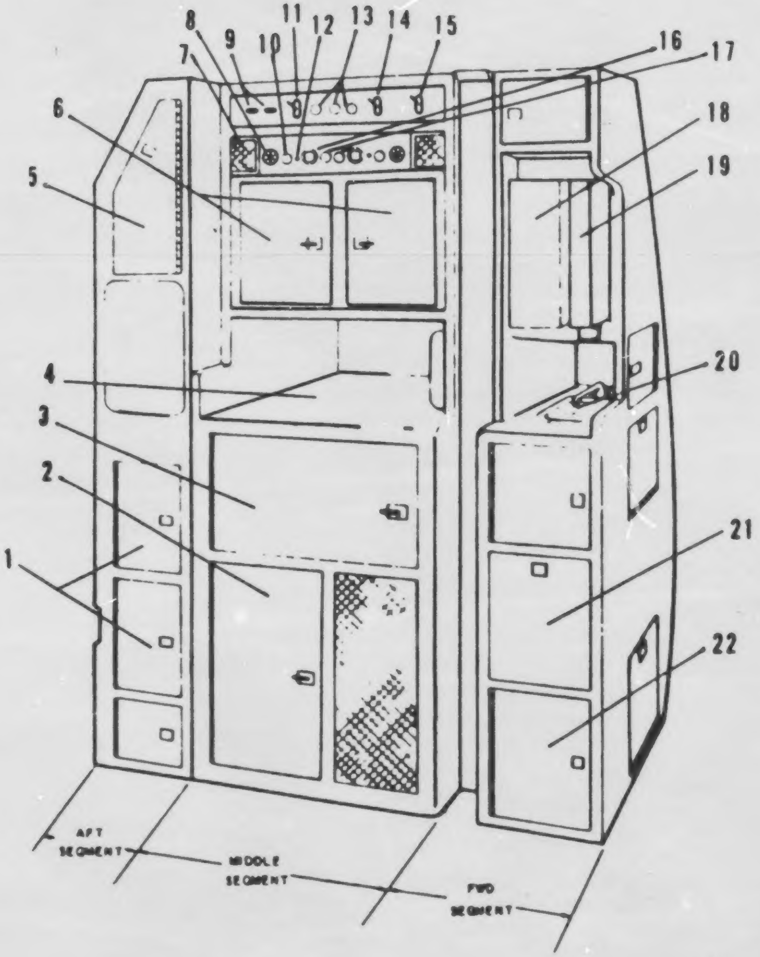
1. TRAY KIT
2. PLASTIC SILVERWARE
3. JUICE - 6 OZ. CAN
4. BREAD - 1 SLICE
5. BUTTER - 1 PAT
6. SALAD - ½ CUP
7. SALAD DRESSING - 1 OZ.
8. DESSERT - APPLESAUCE (½ CUP)
9. MEAT - BITE-SIZE STEAK IN WINE SAUCE
10. RICE - 3 OZ.
11. WAX BEANS - 3 OZ.

CTIM Tray set-up

Figure 6

6

C-9 GALLEY



1
2
3
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11
12
13
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15
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17
18
19
20
21
22
AFT SEGMENT
MIDDLE SEGMENT
FWD SEGMENT

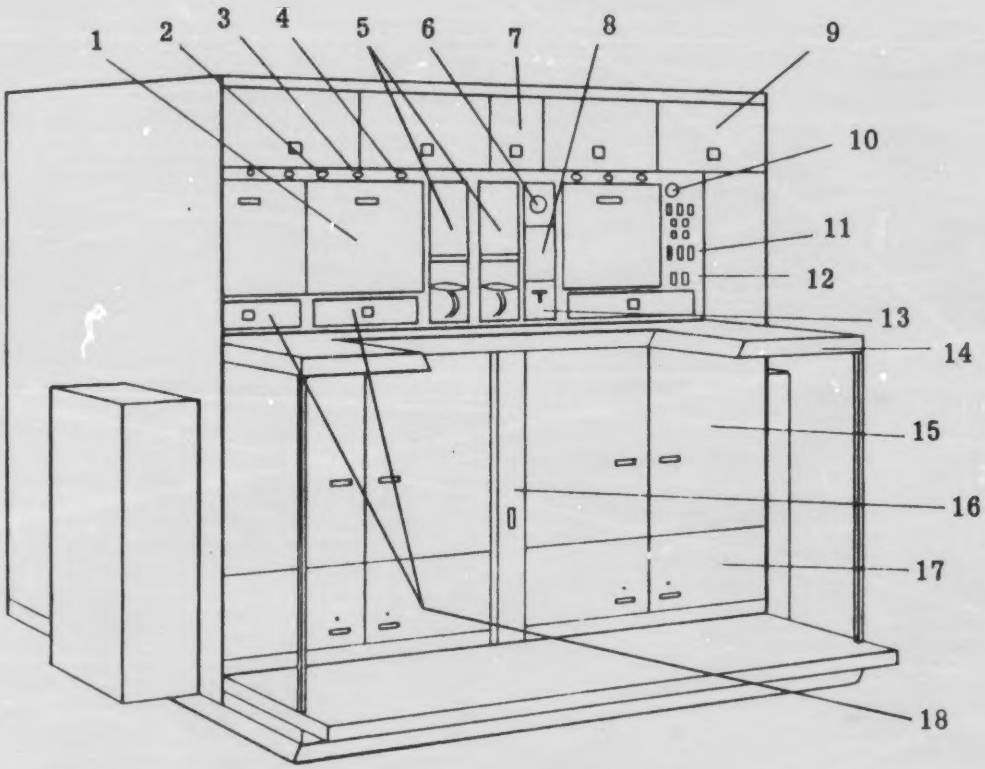
GALLEY NO. 1

Figure 7

17

1. UTILITY TRAYS.
2. FREEZER ELECTRICAL
3. REFRIGERATOR ELECTRICAL
4. WORK SURFACE
5. LITTER TRAY HOLDERS
6. CONVECTION OVEN ASSEMBLY
7. VENT
8. TIMER
9. OVEN 1 AND 2 CIRCUIT BREAKERS
10. OVEN ON LIGHT
11. ON AND OFF SWITCH
12. RESET BUTTON
13. COFFEE UNIT
14. WATER HEATER ON AND OFF
15. WORK LIGHT ON AND OFF SWITCH
16. TEMPERATURE SELECTOR
17. OVEN READY LIGHT
18. AUTOMATIC COFFEE MAKER AND HOT WATER DISPENSER
19. CUP DISPENSER
20. GALLEY SINK
21. INSULATED ICE CUBE DRAWER
22. TRAYS, FOOD SERVICE DRAWER STORAGE

C-141 GALLEY



1. Whirlwind Oven Assembly
2. Oven Temperature Selector
3. Oven Power Light
4. Oven Timer
5. Coffee Brewer Assembly
6. Cup Dispenser
7. Storage Cabinet
8. Cup Food Warmer
9. Trays, Food Service (20)
10. Hot Cup Timer
11. Oven Power Control Buttons
12. Coffee Brewer Control Buttons
13. Water Tap
14. Galley Tray Table
15. Refrigerator Non-mechanical, dry ice
16. Storage Cabinet, Galley Tray Table
17. Freezer Non-mechanical, dry ice
18. Storage Drawers

Figure 8

QUESTIONS AND PROBLEMS

1. Define Aeromedical Evacuation.

2. Explain the two types of inflight meals.

   a.

   b.

3. What does CTIM mean?

4. Explain the limitations of the box lunch.

5. What are the advantages of preparing and loading all CTIMs at selected locations?

6. Upon the request of a CTIM from AECC or ASF, what form would you use to record the diet order? ______________ How many copies would you make? ______________

7. What information should be included on the label of an inflight meal?

8. In your own words, explain why bite-size meat is used on CTIM meals.

29b

9. Select one answer for the following questions:

a. CTIM meals are always frozen/chilled.

b. CTIM meals provide a hot/cold meal for patients in the aeromedical system.

c. Sandwiches are/are not used in the CTIM system.

d. CTIM meals are prepared in advance/to order.

10. Explain the types of packaging materials that should be used for CTIMs.

11. List the regulations that pertain to therapeutic inflight meals.

STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-2b

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

APPLIED CLINICAL NUTRITION

(THERAPEUTIC NUTRITION)

September 1975

AIR TRAINING COMMAND

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-2b
September 1975

APPLIED CLINICAL NUTRITION

(THERAPEUTIC NUTRITION)

OBJECTIVES

Upon completion of this unit of instruction and study guide, you will be able to:

1. Define therapeutic nutrition.
2. Discuss standard and nonstandard diets.
3. Identify the objectives of therapeutic diets regimens.
4. Relate therapeutic diets to the normal diet.
5. Identify the therapeutic modifications of the regular diet and indications for their use.

INTRODUCTION

The food an individual eats each day affects that individual in many ways. Most people eat food either for energy or because it tastes good, not because they are aware of all the functions that food performs in the body once it is eaten. The majority of the population of the United States eat whatever they please and consider themselves to be receiving a well-balanced diet. There are a few persons in the population however, who cannot tolerate a regular diet and must modify the regular diet in one or more ways to compensate for this intolerance.

INFORMATION

In a previous lesson, you learned the definition of a diet. You should remember that the term is so general that even if a person ate only candy bars every day, this routine would be considered a diet. On the other hand, the food eaten by another person who eats a perfectly balanced diet each

---

This supersedes SW 3ABR62231-2-II-2b, May 1975 and every day also would fall under the basic definition of a diet. Both diets could be called "normal" because they would be the norm for the individual eating them. Calling the diet "normal" still does not make the first diet mentioned an acceptable diet. Perhaps we would do better to use the adjectives "adequate" or "basic" or "regular" when meaning a well-balanced diet. However, all of these terms are understood to mean a well-balanced diet, with each diet including the minimum allowances of the Basic 4 Food Groups, unless otherwise stated.

The term "diet therapy" implies the use of diet (including both food and drink) not only in the care of the ill, but also in the prevention of disease and the maintenance of health. Regardless of the individual's physical status, whether he is healthy or sick, he must be maintained in a good nutritional balance. As a diet therapy specialist you will be concerned primarily with using food to help patients recover from illnesses.

Therapeutic nutrition is defined as the use of food as an agent in effecting recovery from illness. In some metabolic diseases, such as diabetes and hypoglycemia, the therapeutic diet is the only medication ordered for the patient by the physician. Most of the time, however, the therapeutic diet is ordered in conjunction with some type of medication to return the patient to good health.

The term "therapeutic diet" will be defined as an adaptation of the normal (adequate) diet to meet a specific health need. All diets are based on the "foundation" diet which you learned in a previous lesson. This is another term for "Basic Diet." The terms "therapeutic" and "modified" indicate that the diet has been changed from the normal diet. These terms will be used interchangesably throughout this course.

In addition to other terms applied to diets, you will hear diets referred to as "routine" and nonroutine" diets. For our purposes within the Air Force, when using AFM 160-8, the following definitions apply:

1. Routine Diets - Those diets listed in Chapter 3 of AFM 160-8, including Regular, Soft, Clear and Full Liquid diets are considered to be "routine." These diets usually do not require calculations and modifications to fit. the particular needs of individual patients, except for considering individual food likes and dislikes. Patients on Regular Diets are almost always offered a selective menu form which enables them to choose the foods they wish. Their diet has no limitations, so they may have whatever foods they choose from the menu offered.

Patients on Clear and Full Liquid diets have such a limited variety of foods to choose from, there is very little modification that is allowed. You may sometime modify the quantity of allowed foods for some patients and you may be asked to eliminate some foods - such as citrus juice or milk, for a patient on a Full Liquid diet by substituting another allowed food. Patients usually do not remain on Liquid diets for a long length of time, so individual modification is not a major factor as it is for patients who remain on a diet for the long term.

Patients on a Soft diet are usually on this diet for a short length of time before they progress to a Regular diet. Their diet has few limitations. For both of these reasons, you usually will not have very many individual modifications to make for these patients.

2. Nonroutine Diets - All other diets listed in AFM 160-8 are considered to be Nonroutine Diets. These may require modifications to meet the individual needs of patients. This does not mean the patient is allowed anything he desires. Each of these diets has specific foods allowed and specific foods to be avoided by the patient on these diets. Rather, you would work closely with the patient, determine his particular food likes and dislikes, together with other considerations which will be explained in detail in Professional and Patient Relationships, and calculate the diet based on these factors, together with the Meal Pattern and list of foods allowed in AFM 160-8.

All diets listed in AFM 160-8 would be considered standard Air Force diets. A nonstandard diet would be a diet that is not listed in AFM 160-8. Physicians sometimes desire to use a diet that is not in the Air Force diet manual. In such a case, he would need to work closely with the dietitian or diet therapy supervisor to be sure they are familiar with the diet. Often there is a diet that is included in the Air Force diet manual that is very similar and could be used. An example would be the Sippy Diet. This diet was popular years ago, but is now considered to be out-dated. Some physicians still persist in ordering a Sippy Diet. The Bland I diet in AFM 160-8 is similar to the Sippy diet, and when a need for such a diet is determined, it should be ordered as a Bland I diet, not as a Sippy Diet.

OBJECTIVES OF THERAPEUTIC DIETS

As mentioned in the introduction, not everyone can tolerate a regular diet but this is not the only reason for preparing therapeutic diets. Therapeutic diets may be planned and served for any one or a combination of the following reasons:

1. To maintain good nutritional status.

2. To correct deficiencies that may have occurred.

3. To afford rest to the whole body or to certain organs that may be affected.

4. To adjust the food intake to the body's ability to metabolize the nutrients; and

5. To bring about a change in body weight whenever necessary.

THERAPEUTIC MODIFICATIONS OF THE NORMAL DIET

Insofar as possible, every therapeutic diet should begin with the normal diet and any modifications required should involve as little variation from the normal diet as possible. The new modified diet must be adequate in essential nutrients, if at all possible, and should take into consideration the patients food preferences and intake habits, economic status, and other environmental factors. These will be discussed in detail in Professional and Patient Relationships. To adapt a normal diet to the patients' condition, one or more of the following therapeutic modifications may be required.

1. Change consistency - A change in consistency involves liquifying, pureeing, grinding, or chopping regular foods into a simpler form for ease in chewing and/or swallowing. This modification would be used for patients with disorders of the mouth or esophagus, for patients with no teeth, or for those unable to tolerate solid foods. Tube feedings may be required if the patient, for mental or physical reasons, is unable to take food through the mouth in the usual manner.

2. Increase or decrease energy values - Energy value (calories) may be increased if the patient needs to gain weight or in disorders of the gastrointestinal tract when increased calories are needed to compensate for malabsorption. When increasing calories, the protein intake should be increased in a greater proportion than carbohydrate and fat intake to insure an adequate intake. This may be accomplished by adding between meal supplements of fortified beverages such as fortified milk, fortified soup, pasteurized eggnog, and Metrecal. (Refer to AFM 160-8, page 10-9 for supplements).

3. Increase or decrease the amounts of one or more nutrients - When a case of nutritional deficiency is established, the intake of the specific nutrients involved is increased until the deficiency is corrected. A nutritional deficiency of one specific nutrient is unlikely to occur in the U.S., with the exception of iron. An increase in iron is necessary for patients with anemia. An increase of protein is usually beneficial for underdeveloped or underweight patients and for patients recovering from surgery. Dietary treatment can control (usually decrease) the intake of CHO in diets for patients with diabetes, the intake of fat in diets for patients with diseases of the gallbladder, and the intake of calcium in diets for patients with hypercalcemia, gallstones, or kidney stones. When edema occurs, such as in congestive heart failure or during toxemia of pregnancy, a sodium-restricted diet is prescribed. Increased blood levels of cholesterol (hypercholesterolemia)

necessitate a fat-controlled diet which limits the amount of fat in the diet but which is primarily concerned with controlling the types of fat. A fat-controlled diet uses more saturated fats in the form of oils while limiting the amounts of solid and animal fats.

4. Increase or decrease bulk - Bulk in the diet comes from cellulose in the skin, pulp, and seeds of fruits and vegetables, and from the connective tissue of meat. An increase of bulk in the diet is required for patients with constipation. A decrease of bulk in the diet is required for patients with ulcers, colitis, hemorrhoids, or following rectal surgery. Bulk in the diet can be decreased by using cooked fruits and vegetables and by eliminating the "gassy" vegetables, melons, and other such fruits and vegetables which cannot be softened by cooking. To increase bulk in the diet, increase consumption of raw fruits and vegetables.

5. Provide foods bland in flavor - Specific flavorings and seasonings must be omitted from the diets of patients with ailments of the gastrointestinal tract. Foods on bland diets should be chemically and mechanically non-irritating. Chemically irritating foods would be those which stimulate gastric secretions, such as spices, coffee, broth, and carbonated beverages. Substitutions for these would be chemically nonirritating foods such as cocoa, decaffeinated coffee, and cream soups. Mechanically irritating foods should be avoided, especially following surgery when the gastrointestinal tract is easily irritated by foods containing a lot of fiber. The foods low in fiber mentioned in paragraph four, would be used for these patients.

6. Include or exclude specific foods - Many persons are allergic to specific foods so these foods must be omitted from their diets. Foods which are most often found to cause allergies are: milk, wheat, and eggs. Inborn errors of metabolism, such as phenylketonuria (PKU), or lactose intolerance, necessitate omitting specific foods. For the child with PKU, any protein foods containing phenylalanine must be omitted. This includes omitting meat and milk products. If the patient exhibits symptoms of a lactose intolerance, all milk products are omitted from his diet. Children with celiac disease and adults with nontropical sprue must omit cereals, especially wheat, oats, barley, and buckwheat.

7. Modify the intervals of feeding - The majority of the diets served will be planned around a three-meals-per-day schedule. Many therapeutic diets require small amounts of food at frequent intervals to enable certain body functions to proceed properly or to afford rest to certain over-active organs. This may mean a six-meal-per-day schedule, or sometimes hourly feedings for some patients. A fat-restricted diet rests the liver and gallbladder. A 6-feeding bland regimen keeps food in the stomach at all times, providing a buffer for the hydrochloric acid, so as not to irritate an ulcer. Frequent, limited-carbohydrate, increased-protein feedings enables the patient with hypoglycemia to maintain constant blood sugar and energy levels. Fortified beverages may be used between meals to increase protein and/or calorie intake.

As your proceed to the next unit of instruction on diet modifications, refer back to these modifications of the normal diet. The principles of therapeutic diets will be applied in following units of instruction as you plan, calculate and write diets. You will apply these principles daily when you are in a hospital and working with patients. Remember that a therapeutic diet is patterned after the patients' usual diet, consists of available foods, is adapted to the patients food preferences whenever possible, and should keep the patient in good nutritional balance.

READING ASSIGNMENT

Chapter 1, AFM 160-8, Applied Clinical Nutrition

Chapter 29, page 400 - 408, Normal and Therapeutic Nutrition, 14th Edition, C. Robinson.

1. Define therapeutic nutrition. ____________________

____

____

____

2. What is the principal therapeutic agent in some metabolic diseases?

____

3. What are the purposes of therapeutic diets?

   a. ____________________
   b. ____________________
   c. ____________________
   d. ____________________
   e. ____________________

4. When planning a therapeutic diet, one should begin with the:

____

____________________.

5. In what ways may a normal diet be modified?

6. The Diet Manual lists all the standard routine diets used in AF hospitals. Does this mean all patients receive exactly the same foods, even if they don't like these foods?______________________________

Why?____

____

____

____

7. Differentiate between "Modified" and "Therapeutic" diets.

8. What diets are listed under the "Routine Hospital Diets" classification?

9. The best diets manual is prepared by a committee representing the various medical specialties, nursing, and dietary departments. The diet manual serves as a guide for ________________________,

__________________________, ______________________________, and

____

____.

THERAPEUTIC NUTRITION
LABORATORY

OBJECTIVES

During this laboratory each student will:

1. Prepare the following foods:
    a. Fortified Beverage
    b. Fortified Cereal
    c. Fat Free serving of chicken
    d. Chop, dice, grind and puree chicken
2. Operate the following equipment:
    a. Blender
    b. Hot Plate
    c. Meat grinder

EQUIPMENT

Paper Plate (1 each)
Cutting Board (1 per 2 students)
French Knife (1 per 2 students)
Food Grinder (1 per class)
Food Blender (1 per 2 students)
Hot Plate (1 per class)
SaucePan (1 per class)
Cheesecloth (1 pkg per class)
Measuring Cup or Glass (1 per 2 students)
Spoon (1 each)
Instant Cereal (1 pkg each)
Nonfat dry milk (1 box per class)
Whole milk (1 cup each)
Sugar (1 Tblsp each)
Chicken(cooked) (1 piece each)
Cream of chicken soup (2 cans per class)

PROCEDURES

SAFETY: During this laboratory you will be dealing with hot and sharp equipment. Carefully follow these safety precautions:

a. French knives are sharp. Use the handles; keep fingers from under the long blade.

b. Do not hold food in the meat grinder with your fingers. Use a spoon or other utensil.

c. Do not put fingers or spoons into blender. Keep lid in place when the blender is in operation.

1. Your instructor will divide the class into groups of two each. Following a demonstration by the instructor, each pair of students will modify foods for therapeutic diets.

2. Prepare a fortified beverage using the following:

   a. Measuring cup
   b. One package Instant Breakfast
   c. One cup skim milk reconstituted

   PROCEDURE: Combine nonfat dry milk solids with whole milk and mix thoroughly with a spoon.

3. Prepare fortified cereal using the following:

   a. 1 cup fortified milk
   b. 1 package instant cereal
   c. 1 tablespoon sugar

   PROCEDURE: Heat fortified milk on the hot plate (do not scald or boil); combine with instant cereal. Mix thoroughly. Add sugar.
   CAUTION: The hot plate is HOT!

4. Prepare fat-free chicken using the following:

   a. 1 piece cooked chicken
   b. Paper plate

   PROCEDURE: Remove skin from chicken.

5. Chop, dice, grind and puree the chicken using the following:

   a. Cutting board
   b. French knife
   c. Meat grinder
   d. Food blender
   e. Piece of chicken (1)
   f. Cream of chicken soup
   g. Cheesecloth

PROCEDURE: Place lean chicken on cutting board and remove meat from bone. Chop into coarse pieces using the French knife. Exercise caution when using any sharp knife. Continue chopping until approximately 1/4 inch square. Place diced chicken in grinder and grind. Put ground chicken in blender. Prepare the cream of chicken soup according to directions on the label; heat. Add a small amount to the chicken in the blender. Blend until thick and smooth; add more soup and continue blending until it is of pouring consistency with no lumps. Strain through the cheesecloth.

6. After completing the laboratory procedures outlined above, each pair of students will clean up the utensils and work area which they used.

STUDY GUIDE AND WORKBOOK
3ABR62231-2-II-2c

Technical Training

Diet Therapy Specialist

APPLIED CLINICAL NUTRITION
(DIET MODIFICATIONS)

October 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
Department of Biomedical Sciences
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
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SW 3ABR62231-2-II-2c
October 1975

APPLIED CLINICAL NUTRITION
(DIET MODIFICATIONS)

OBJECTIVES

Upon completion of this Study Guide and Workbook, each student will have accomplished the following objectives.

a. Discuss the format of AFM 160-8, Applied Clinical Nutrition.

b. Explain the differences between menus and meal patterns.

c. Identify the diets listed in AFM 160-8 and answer questions concerning these diets.

d. Using AFM 160-8 and assigned texts, present a 5-10 minute briefing on an assigned therapeutic diet to include items on checklist 3ABR62231-II-3d, omitting no more than two of the six items listed.

e. Using AFM 160-8 and food models, identify the foods which could be used on each of four assigned diets with 70 percent accuracy.

f. Given six regular and therapeutic diet trays composed of food models and identification slips, inspect the trays for correct food items and proper portion size. Seventy percent of the errors on the trays must be correctly identified, using AFM 160-8.

g. Given pertinent data on a patients food intake and using AFM 160-8, calculate and list CHO replacements for specific diabetic diets on checklist 3ABR62231-2-II-3g. Juice used for CHO replacement must be within + or - 1 ounce of the correct replacement quantity.

h. Given AFM 160-8 and a calorie restricted diet menu, calculate the grams of CHO, protein, fat and calories the patient will receive. Calculations for CHO, Pro & Fat must be + or - 5 grams each of the correct day's total; calories must be within 50 calories of the requested amount. Record data on checklist 3ABR62231-2-II-3h.

INTRODUCTION

As Diet Therapy Specialist, you will be dealing with regular and therapeutic diets during food preparation, tray assembly, and distribution of trays to the nursing units. Since you cannot commit to memory all of the modifications to the numerous diets listed in AFM 160-8 at this time, you must learn certain basic concepts of each diet. Learn to use AFM 160-8 with speed and accuracy, for it will be your on-the-job Bible.

To help you learn about each classification of diet and to get an idea about the types of foods permitted on each diet, this SW is set up into chapters - each with a reading assignment and questions. These chapters are set up so as to match AFM 160-8, Applied Clinical Nutrition.

INFORMATION

AFM 160-8 is divided into 22 chapters, all of which, with the exception of chapters 1 and 2, are arranged in approximately the same format. Chapter 1 contains material explaining the manual itself and should be read before you proceed any further. Section B of this

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This supersedes SW 3ABR62231-2-II-2c, May 1975 (refer to page 1-3) chapter contains the Diet Digest, a brief explanation of all diets found in the manual. It serves as a quick reference for finding the chapter in which the diet is explained in detail. Chapter 2 explains the RDA, with which you are already familiar.

FORMAT OF AFM 160-8

The format of the remaining chapters can be illustrated by a brief review of the main topics in, for example, chapter 9, page 9-1. The main headings, in bold print, include: Indications for Use, Ordering Information, Approximate Nutrient Content, Food Suggestions, and a Recommended Meal Pattern. Almost all diets listed in AFM 160-8 provide this same information, in this same format.

a. Indications for Use. This section lists medical conditions for which the diet is ordered. It may also include a brief explanation of why the diet is required for the condition(s). By being familiar with the Indications for Use for each diet, you will have an idea of what the patient is being treated for.

b. Ordering Information. This section explains special information required to be in the diet order as it is forwarded from the nursing units, over and above the name of the diet. For example, the specific sodium content of a sodium restricted diet (such as 500 mgm sodium) should be specified in addition to ordering the diet only as restricted sodium. Intervals of feeding or special feedings and any intolerances the patient may have to specific foods should be mentioned in the diet order. This section explains dietary progression, general consistency of foods allowed, and nutritional adequacy of the diet.

c. Approximate Nutrient Content. This section consists of a table describing the nutrient content of the diet. The information included is calorie content, grams of carbohydrate, protein, and fat, and amounts of selected vitamins and minerals contained in the diet. In checking to be sure the diet is adequate, you can compare the nutrient content of any diet with the RDA.

d. Food Suggestions. This is a listing of all the foods the patient is allowed and those he is to avoid on his diet. Most of the food suggestions are categorized as: milk, eggs, meat or substitute, potato or substitute, bread and cereals, vegetables, fruit, fat, soup, sweets, dessert, beverage, and miscellaneous. The calorie restricted, diabetic, controlled cholesterol, and sodium restricted diet food suggestion lists are set up as Food Exchange Lists. You must begin to learn these lists by heart for each diet in the manual so that you can cook and serve foods correctly.

e. Recommended Meal Pattern. The meal pattern is a guide to the type and amount of food allowed for a normal day when the patient is on a specific diet. This meal pattern is a guide and is modified to meet the requirements of the individual patient.

MENUS AND MEAL PATTERNS - THERE IS A DIFFERENCE

Therapeutic meal patterns are designed as a guideline for writing diet menus, they are not to be used as a menu. All diets in AFM 160-8 have a prepared meal pattern. There will come a time, however, when you may be required to write a therapeutic menu.

Learn the difference between the two:

A meal pattern indicates types and amounts of foods. It is used as a guide in writing menus.

A menu indicates specific foods. It may also list methods of preparation, such as fried eggs, baked chicken, etc.

Note the difference between the meal pattern and the menu below. The menu is based on the meal pattern. You will be working with both. This meal pattern is that given on page 9-5 of AFM 160-8, for a 250 mgm sodium (Na) diet:

Meal Pattern	Menu
Na Restr Appetizer	Orange Juice
3 oz Na Restr Meat	3 oz Na Restr Roast Beef
Na Restr Potato	Na Restr Baked Potato
Na Restr Vegetable	Na Restr Corn on the Cob
Na Restr Salad w/Na Restr Salad Dressing	Na Restr Lettuce Wedge Na Restr Oil and Vinegar Dressing
Na Restr Bread	Na Restr Bread
Na Restr Butter	Na Restr Butter
Na Restr Fruit or Dessert	Na Restr Pecan Pie
Sugar - Pepper	Sugar - Pepper
Coffee	Coffee

As already mentioned, notice that the menu is based on the meal pattern. The menu also gives information regarding the preparation of the food (the beef is to be roasted and is not to be seasoned with salt; the potato is to be baked, etc.). It also indicates that some food items are unique (the bread and butter must both be sodium restricted, which must be specially purchased).

To aid you in learning about the diets listed in AFM 160-8, this study guide and workbook contains a reading assignment, as well as further pertinent information to give you further understanding of the diets, and questions on each diet. The "general modifications of the normal diet" referred to in the questions are the seven therapeutic modifications discussed in "Therapeutic Nutrition." Also remember that although various text books may call a diet by a name slightly different than used in AFM 160-8, that the manual - Applied Clinical Nutrition - is the terminology we always use in the Air Force.

ROUTINE HOSPITAL DIETS

READING ASSIGNMENT

AFM 160-8, chapter 3

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapter 29.

INFORMATION AND QUESTIONS

The routine hospital diets consist of the regular, soft, clear liquids, and full liquid diets. These diets are listed in chapter 3 of AFM 160-8. In some hospitals (but not in the Air Force), these diets are referred to as "House Diets," and include the general, light or soft, and liquid diets. You will be using the names of the individual diets rather than calling them"Routine Hospital Diets." These diets are used routinely for patients not requiring a therapeutic diet.

1. Regular Diet. This diet is used for patients requiring no dietary restrictions and supplies from 2200 to 3200 calories per day, depending upon the menu items chosen from the selective menu. All foods from the Basic Four Food Groups are included in the selective menu. There are no particular food restrictions in the regular diet. Patients may order whatever they choose to eat.

   a. How would a diet for a patient who needs no dietary restriction be ordered?

   b. Is the diet deficient in any food nutrients?

   c. Why does the caloric content vary from 2200 to 3200 calories per day?

2. Soft Diet. This diet is a transitional diet intended to be easily digested and consisting of foods low in cellulose and tough connective tissue. It is often prescribed for patients after they have been on a full liquid diet but who are not ready for a regular diet. In addition to those conditions listed in paragraph 3-6, AFM 160-8, when the patients' condition indicates a need for mechanical ease in eating and/or digestion, the soft diet may be prescribed.

Patients without teeth or those unable to chew for any reason will require a dental soft diet (see chapter 13), which is quite different from the soft diet described in chapter 3. Keep in mind that the soft diet is not "mechanically soft" - that is, the foods have not been ground and chopped into fine particles. The foods on the soft diet are always served whole and are easily digested.

   a. What terminology would be used in ordering a soft diet?

   b. What type foods are used on the soft diet?

   c. Is the diet deficient in any food nutrients?

   d. What general modification(s) of the normal diet are involved?

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e. When is the soft diet used?

3. Surgical and Liberal Clear Liquid Diets. As the names imply, all foods in the diet are clear. Most of the time you can see through them. The surgical clear liquid diet is used following surgery to supply fluids and nourishment. Fruit juices are omitted because they may cause the patient to become distended. Milk and foods prepared with milk are omitted. Fats are omitted. The liberal clear liquid diet allows strained fruit juices and carbonated beverages in addition to those liquids included in the surgical clear liquid diet. The liberal diet is used in cases of temporary food intolerance, during periods of acute illness, and to relieve thirst.

a. How are liquid diets ordered?

b. Are the diets adequate in all food nutrients? If not, list the nutrients in which the diet is deficient?

c. When is the surgical clear liquid diet used?

d. When is the liberal clear liquid diet used?

e. The surgical clear liquid diet consists of ______________, ______________, ______________________________ and ______________________________________.

f. The liberal clear liquid diet allows for the addition of ____________________ and ______________________________ to the surgical clear liquid diet.

4. Full Liquid Diet. This diet is used for the acutely ill or debilitated patient when the patient is unable to chew or swallow solid food. It is a transition between the clear liquid and soft diets. The diet consists of foods which are liquid at room temperature such as ice cream or jello, or which will liquify at body temperature, such as refined cereals. All foods must be thoroughly strained before serving to the patient. If the diet is to be used for long periods of time, additional vitamins, protein, and calories must be planned into the diet.

a. When would the full liquid diet be used?

b. Of what foods does the diet consist?

c. Is the diet adequate in all food nutrients? If not, list the nutrient in which the diet is inadequate.

d. What between-meal feeding does the patient on a full liquid diet receive at bedtime?

SURGICAL ROUTINES

READING ASSIGNMENT

AFM 160-8, chapter 4.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 500-504.

INFORMATION AND QUESTIONS

1. Diets Following Surgery on the Colon. This dietary routine is used following intestinal or rectal surgery. It is not one single diet, but consists of a series of diets progressing from surgical clear liquid to regular as tolerated by the patient. All patients do not tolerate the same foods at exactly the same time following surgery. The physician orders the progression on a day-by-day basis. You must remember that the diet is not automatically given to the patient. Each diet in the regimen must be ordered by the physician. No one but the physician - never the nurse or the dietitian - has the authority to change a diet.

a. What diet is served the first day following colon surgery?

b. What diet is served the second and third days following colon surgery?

Generally speaking, what type of foods are avoided?

c. What dietary regimen is provided for the fourth day through discharge from the hospital?

d. How does the patient progress from one diet to another?

2. Postgastrectomy Diet. Remember your terminology: Post = after; gastr = stomach; ectomy = removal of. Therefore, a postgastrectomy would be the diet ordered after the stomach was removed. Seldom is the entire stomach removed. There is usually at least a small portion that remains, but the patient must receive a diet consisting of small feedings because of the loss of a holding place for food. The diet following gastric surgery consists of a six-day progressive regimen, with the daily intake being divided into three small meals with between-meal feedings. The type and amount of foods given are strictly controlled. Carbohydrates are kept to a minimum: concentrated sweets and very cold foods are avoided. Refer to page 4-1 in AFM 160-8 for this diet. Progression on this diet is never automatic; the diet must be ordered daily by the physician. From the second through the sixth day of the diet, specific foods will be added according to the patient's tolerance for these particular foods. Liquids are given 30-40 minutes after meals to allow food to remain in the stomach and small intestine long enough for digestion to occur. You learned earlier that liquid and high carbohydrate diets pass through the digestive system much faster than solid meals composed of fat and protein foods. If the patient is unable to tolerate the Postgastrectomy Diet and develops symptoms of the "dumping syndrome," the Dumping Syndrome Diet (page 4-3 of AFM 160-8) must be used.

a. When is the postgastrectomy diet used?

b. What are the two most important categories of food to avoid on a postgastrectomy diet?

c. Is the diet adequate in all food nutrients? If not for which nutrients is the diet inadequate?

d. What general modification(s) of the normal diet are involved?

e. Why is the beverage held until approximately 30 minutes after eating?

3. Dumping Syndrome Diet. Following a gastrectomy, some patients experience what is known as the"Dumping Syndrome." Once food is swallowed, it is "dumped" almost immediately (10 to 15 minutes) from the fundus or corpus of the stomach into the small intestine (jejunum) without digestion in the stomach. This is very painful to the patient. Dietary management is the basic factor in treating this condition. Proteins and fats are better tolerated than carbohydrates because of the slower rate of digestion. The three small meals and three or more small feedings consist of solid foods selected from the regular menu rather than liquids because they enter the small intestine less rapidly. Milk and concentrated sweets produce symptoms of the syndrome in many patients, so they are deleted from the diet. Liquids sometimes produce a feeling of fullness in the patient and cause food to leave the stomach rapidly, so they are given 30 to 40 minutes after the meal. The patient should be educated to the fact that rest, eating slowly, and chewing foods well are essential. Naturally, the diet must be adjusted to include the patient's likes and dislikes.

a. Explain the "Dumping" syndrome?

b. Of what foods does the diet consist?

c. What general modification(s) of the normal diet are involved?

d. Is the diet adequate in all food nutrients? If not, list the nutrients in which the diet is inadequate.

e. What would you consider the most important single factor of this diet?

f. ______________________, ______________________, and ______________________ are excluded altogether on the dumping syndrome diet.

g. List the between-meal feeding served to a patient on a dumping syndrome diet at mid-afternoon?

4. Diets Following Tonsillectomy and Adenoidectomy (T&A). The T&A liquid and T&A soft diets are prescribed following a tonsillectomy and adenoidectomy or when a mouth, pharynx, esophagus, or stomach irritation might necessitate its use. Very cold and mildly flavored foods such as ice cream, jello, iced tea and iced coffee are tolerated best, plus they offer the most protection to the surgical area. The progression from liquid to soft diet must be ordered by the physician as the patient is able to tolerate solid foods. The diet is composed of nonirritating, low acid, liquid or soft foods. Milk is avoided on the T&A liquid diet.

a. How are diets following a tonsillectomy or adenoidectomy ordered?

b. For what other medical problems can these diets be used for besides a tonsillectomy or adenoidectomy?

c. Are the T&A diets adequate in all food nutrients? If not, list the nutrients in which the diet is inadequate.

d. What general modification(s) of the normal diet are involved?

e. How does the patient progress from a T&A liquid to a T&A soft diet?

f. What foods are served on the day of T&A surgery?

g. List the foods usually served on a T&A liquid diet for the breakfast meal.

h. When is a T&A soft diet usually begun?

PROGRESSIVE BLAND REGIMEN

READING ASSIGNMENT

AFM 160-8, chapter 5.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapter 34.

INFORMATION AND QUESTIONS

The bland diet regimen, although used as a therapeutic agent in many disorders, is primarily used in the treatment of peptic ulcer disease. This disease is caused by the action of digestive secretions and/or digestive enzymes on the mucosa (lining) of the stomach or duodenum. If the ulcer is located in the stomach, it is a "gastric" ulcer; if it is located in the duodenum, it is a "duodenal" ulcer. Approximately 10 percent of the total population of the U.S. have had or are presently afflicted with this disease. Some of the causes of ulcers are: faulty eating habits, excessive smoking, excessive alcoholic beverage consumption, heredity, emotional conflicts, stress, nervous strain, and psychic trauma. Ulcers are more frequently found in men than in women and more often in persons who are hard-working, naturally tense, and hard-worrying.

The treatment for the patient with peptic ulcer disease is healing of the wound, relief from pain and preventing the ulcer from reoccuring. Physical and mental rest are as important as diet in treating ulcers. The bland diets in AFM 160-8 are set up in a progression from hourly feedings of a very limited number of easily digested protein foods (the Bland I diet) to the liberal three meal per day diet (Bland IV) which includes any foods the patient can tolerate. Progression from the Bland I to the Bland II diet and on up to the Bland IV is not automatic. The physician orders whichever level of diet the patient is able to tolerate and progresses the patient to the next level only when the patient is ready to progress. No one except the physician can write the order to progress the patient on his diet. All four bland diets are high in calories because of the quantities of milk served with and between meals.

1. Bland I Diet. The Bland I diet is the most restricted of the bland diets. Digestive secretions of the stomach and intestine are irritants to the ulcer and must be buffered by the diet. No food has a continuous 24 hour buffering effect so the Bland I diet has been set up to consist of 3 to 4 ounce feedings of protein foods, including milk, custard, and cream soups, given every hour. The diet is severely limited, nutritionally inadequate, and used primarily during the acute stages of ulcer disease.

2. Bland II Diet. The Bland II diet is less restrictive than the Bland I diet and consists of six 10 ounce meals made up of foods containing little or no fiber. In addition to the foods allowed on the Bland I diet, fruits and vegetables are permitted but must be strained before serving. Tender, solid meats are also permitted. Fried and highly seasoned foods must be avoided. This diet is not used for extended periods of time because it is nutritionally inadequate.

3. Bland III Diet. This diet is used in treating peptic ulcer disease and may be combined with steroid therapy to prevent inflammation of the upper gastrointestinal tract. The Bland III diet consists of three meals and three between-meal feedings though the foods are the same as those allowed on the Bland IV, three meal diet. The six feeding regimen is to help the patient adjust to regular eating habits, to avoid distention of the stomach, and to minimize free stomach acid.

4. Bland IV Diet. The Bland IV (three meal) diet is the most liberal of the bland diets. The diet is designed for use after the acute stages of ulcer disease and also for home use. The patient is ready to return to his normal eating habits of three meals per day though he may occasionally require between meal feedings. This diet encourages the patient to try any and all regular foods which he can tolerate. You will note that many of the foods in the"Avoid" list in paragraph 5-19 in AFM 160-8 have an asterisk (*) next to them. These foods may be tolerated by some individuals and should be tried by the patient at home. They are not included in the hospital diet except on an individual basis.

Though little is known about which specific foods stimulate gastric secretion and the effects of specific spices and foods on the gastric mucosa, researchers have found that coffee and alcohol do stimulate gastric secretions, so are eliminated from the bland diets. Many of the stronger spices, such as black pepper, chili powder, mustard seed, etc., have caused a slight reddening of the mucosa (stomach lining) in some patients so are eliminated from the diet in acute and convalescent stages. As the patient progresses back to the normal diet, he can experiment with these spices and see if he can tolerate them.

a. Bland I Diet

(1) When would the Bland I diet be used?

(2) Of what foods does the Bland I diet consist?

(3) Is this diet adequate in all food nutrients? If not, list the nutrients in which the diet is inadequate.

(4) How does the patient progress from the Bland I to a Bland II diet?

To a Bland IV diet?

(5) What feeding(s) does the patient on a Bland I diet receive at 0800 hours?

At 1200 hours?

At 1400 hours?

At 1500 hours?

At 1800 hours?

At 2200 hours?

From 2300 - 0700 hours?

b. Bland II Diet

(1) When is the Bland II diet used?

(2) How many and what size feedings does the patient on a Bland II diet receive?

(3) Are there any special notations that should be made in the diet order for this diet?

(4) Is the diet adequate in all food nutrients? If not, list the nutrients in which the diet is inadequate?

(5) What general modification(s) of the normal diet are involved?

(6) What mid-morning feeding would you prepare for the patient on a Bland II diet?

c. Bland III Diet

(1) When is the Bland III diet used?

(2) Is the diet adequate in all food nutrients? If not, list the nutrients in which the diet is inadequate.

(3) What general modification(s) of the normal diet are involved?

(4) How many meals or feedings does the patient receive daily on this diet?

(5) What is the mid-morning feeding served on this diet?

d. Bland IV Diet

(1) When is the Bland IV diet used?

(2) Of what foods does this diet consist?

(3) Is the diet adequate in all food nutrients? List any nutrients in which the diet is inadequate.

(4) How is the daily dietary intake divided?

(5) What general modification(s) of the normal diet are involved?

(6) Why are some foods listed under the "AVOID" column of Food Suggestions asterisked?

(7) Why is the caloric content of the Bland III and Bland IV diets so high?

(8) Of the Bland I, II, III, and IV diets, which is the most restricted?

MINIMAL RESIDUE AND FIBER RESTRICTED DIETS

READING ASSIGNMENT

AFM 160-8, chapter 6.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapters 34 and 35.

INFORMATION AND QUESTIONS

The terms "fiber" and "residue" are often used interchangeably though they do not mean the same thing. Fiber is the seeds, structural parts, and skins of plant foods and the connective tissue of meats. These materials increase the bulk in the feces and promote peristalsis in the large intestine. Residue includes the indigestible fiber and other products from normal life processes. Residue and fiber in the diet are very important to promote good elimination. "Low Residue" describes the form of the food when it reaches the large intestine. For instance, milk and fat increase the content of stools though they are low in fiber. These low residue and fiber restricted diets are ordered chiefly for the patient with rectal or intestinal complications. A high protein, low residue meal is sometimes used by flight crews engaged in operations involving long hours of flight.

1. *Minimal Residue Diet*. The minimal residue diet is used in treatment of severe intestinal disorders when fecal matter must be reduced to a minimum. The diet should not be used for long term treatment since food selections are extremely limited. For example, no fruits and vegetables are allowed on the minimal residue diet with the exception of strained fruit juice or tomato juice.

a. When is the minimal residue diet used?

b. Of what foods does the diet consist?

c. Is the diet adequate in all food nutrients? List any nutrients in which the diet is inadequate.

d. What is the diet designed to do?

e. What general modification(s) of the normal diet are involved?

2. Fiber Restricted Diet. This diet is usually ordered for disorders of the intestinal tract such as colitis, diverticulosis, diarrhea, dysentery, irritable bowel disorder, and following intestinal or rectal surgery. This diet is more liberal than the minimal residue and includes fruits and vegetables whose fiber is softened by cooking. You will note that fried foods, "gas-forming" vegetables, and raw fruits and vegetables are omitted. When milk is not tolerated by the patient, the diet is ordered as "fiber restricted - no milk." This diet should be nutritionally adequate except when milk is eliminated.

a. When is the fiber restricted diet used?

b. Of what foods does the diet consist?

c. What foods are not included in the diet?

d. Is the diet adequate in all food nutrients? List any nutrient in which the diet is inadequate.

e. What general modification(s) of the normal diet are involved?

f. When milk is not tolerated, how should the diet be ordered?

g. What between-meal feeding would you automatically send to a patient on this diet?

TUBE FEEDINGS

READING ASSIGNMENT

AFM 160-8, chapter 7.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 498-500.

INFORMATION AND QUESTIONS

Tube feedings are prescribed for patients with mental or physical illness who cannot or will not eat by conventional methods. Feedings are usually given by nasogastric tube, through the nose to the stomach. Tube feedings are liquid and must be perfectly smooth and of pouring consistency so as not to plug the tube. They, therefore, are strained after preparation. They must also provide all essential nutrients, especially if the feedings are to be given over a long period of time.

The characteristics of a good tube feeding are that it must be:

1. Nutritionally adequate
2. Well tolerated by the patient
3. Easily digestible
4. Easily prepared, and
5. Relatively inexpensive

Tube feedings can be prepared for every diet listed in AFM 160-8 or commercial tube feeding formulas may be used. The following procedures must be followed regardless of the type prepared.

1. Ordering data must include the number of calories required for each 24 hour period, the calories per ml, any restrictions, the number of feedings and quantity to be given at each feeding.

2. All feedings must be strained through sterile gauze to prevent lumps.

3. Formula can be held for a 24 hour period only.

4. Strict sanitary procedures must be followed throughout preparation as tube feedings are very vulnerable to bacterial growth.

5. Formula should be stored in single-service disposable or sterilized containers.

6. An air space should be left in each container to permit thorough mixing prior to use.

7. The feeding must be labeled and dated with the patient's name, formula type, date and hour prepared, and other pertinent information.

8. Feeding must be kept under continual refrigeration. Only the amount required for feeding should be removed from refrigeration prior to serving.

9. Eggs used in formulas must always be pasteurized or cooked. Never use raw eggs. (Raw eggs in any form are not allowed to be served in Air Force hospitals.)

10. Feeding should be warmed to body temperature (98° - 100° F.) prior to serving. Formula should never be warmed over direct heat or be overheated.

11. If diarrhea occurs, add 2 to 4 tablespoons of strained applesauce to every 1000 mg formula.

QUESTIONS

a. When are tube feedings used for patients?

b. What are tube feedings?

c. How many calories per cc do most tube feedings provide?

d. What are the four general kinds of tube feedings mentioned in AFM 160-8?

e. What other diets can be made into tube feedings?

f. How are tube feedings normally administered?

g. Describe the nutritional adequacy of each of the tube feedings.

h. Ordering data should include the number of ________________________ required for each ________________________ hour period.

i. Describe the use of water in the Na/Restricted tube feeding.

j. How is the regular tube feeding modified for

(1) Calorie/Restricted

(2) Fat/Restricted

(3) High Protein

(4) Ca/Restricted

k. What can you do if diarrhea occurs?

l. Describe the packaging and storing of tube feedings.

m. What quantity tube feeding should you prepare for a patient's diet order?

n. What temperature is the most tolerated for a tube feeding?

FAT RESTRICTED DIET

READING ASSIGNMENT

AFM 160-8, chapter 8.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 487-491.

INFORMATION AND QUESTIONS

The gallbladder serves as a storehouse for the bile produced by the liver. The presence of ingested fat in the duodenum stimulates contractions of the gallbladder to empty bile into the small intestine. Inflammation or the formation of stones in the gallbladder can occur. When the gallbladder is inflamed or when stones block the flow of bile, any contraction to release bile results in pain. The objectives of dietary treatment are to provide adequate nutrients and to reduce dietary fat and irritating foods in the diet. The restriction of fat necessitates modifying methods of food preparation. Meats should be trimmed of all visible fat and be prepared by broiling, roasting, stewing, or simmering. All fried foods are avoided and only 3 teaspoons of butter or margarine are allowed per day (1 teaspoon per meal). Vegetables and/or foods likely to cause distention or be "gas-forming" are also avoided. The fat content of the diet may be lowered by 12-15 grams by deleting the free-fat (the teaspoon per meal) in the meal pattern. The diet order should indicate "no free-fat" when this restriction is required.

NOTE: The fat restricted diet and controlled-fat cholesterol diet (to be discussed later) are completely different. Both diets are concerned with fat, but the fat restricted diet is concerned with the amount of fat given and the controlled-fat cholesterol diet is concerned with the type of fat allowed.

a. What is the amount of fat permitted in this diet daily?

b. Is the diet adequate in all food nutrients? If not, list the nutrients in which the diet is deficient.

c. What general modification(s) of the normal diet are involved.

d. When is this diet prescribed?

e. What general type of vegetables are excluded on this diet?

f. Do patients receive butter on a fat restricted diet? If so, how much?

g. How does the fat restricted diet become a "no free fat" diet?

DIETS WITH MODIFICATIONS IN MINERALS

READING ASSIGNMENT

AFM 160-8, chapter 9.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 562-73, 582-87, 590-93.

INFORMATION AND QUESTIONS

1. Sodium Restricted Diets. The sodium restricted diet is ordered for treatment of congestive heart failure, hypertension, renal disease, cirrhosis of the liver, and toxemias of pregnancy. Cardiovascular disease is the number one killer in the United States. Efficient functioning of the cardiovascular system depends upon proper exercise and good nutrition. Dietary management plays an important role in regulating the patient following a heart attack when moderate to severe heart damage has occurred. The purpose of the diet in heart disease is to provide maximum rest for the heart, prevent or eliminate edema, reduce weight to normal or slightly below normal, and maintain good nutrition.

> NOTE: The term "sodium" refers only to the sodium ion (Na+) and not to salt which is sodium chloride. All sodium restricted diets must be ordered by the number of milligrams of sodium required.

When the sodium content of the local water supply is more than 20 mg per liter, distilled or demineralized water must be used for drinking and in preparing foods for the 250 mg, 500 mg, and 1000 mg sodium diets. Military Public Health at any base can provide information regarding the local sodium content of water.

a. 250 mg sodium diet - this is the most restrictive of the sodium diets. All foods are prepared without salt and foods containing a significant amount of natural sodium are limited. Sodium restricted milk, bread, and processed foods are used. All commercially prepared food containing sodium compounds are omitted.

b. 500 mg sodium diet - if a less severe restriction is required, this diet is ordered. The diet is the same as for the 250 mg sodium diet with the addition of 16 ounces regular milk per day to replace the sodium restricted milk.

c. 1000 mg sodium diet - this diet involves a moderate restriction of sodium. The diet is the same as the 500 mg sodium diet but permits the use of up to three slices of regular bread.

d. Regular diet without added salt - this diet permits foods to be lightly salted during preparation but no salt is allowed for table or tray use. Obviously salted foods such as ham, bacon, potato chips, pretzels, bouillion, etc., must be avoided.

Calorie restrictions may be imposed along with the sodium restriction. This will usually be for the cardiac patient who needs to lose weight or the pregnant woman who is overweight and/or shows symptoms of toxemia. In both cases, care must be taken to supply adequate potassium and other nutrients on the restricted diet.

Many times a patient will want to use salt substitute when they can't have salt. No salt substitute is given to the patient unless ordered by the physician. Complications, such as kidney or liver disease, would contra-indicate the use of a salt substitute which has a base of potassium or ammonium chloride. The individual giving the diet instruction should encourage the patient to try various spices and herbs to flavor vegetables and meats rather than use the salt substitute.

(1) How is sodium abbreviated for use in Medical Food Service?

(2) How must all Na/Restricted diets be ordered?

(3) Describe the 250 mg Na diet.

(4) Describe the 500 mg Na diet.

(5) Describe the 1,000 mg Na diet.

(6) Describe the regular diet without added salt.

(7) What additional restrictions can be placed on the Na restricted diets?

(8) When is the sodium restricted diet prescribed?

(9) What do most salt substitutes contain?

(10) Why must salt substitutes be used by prescription only?

(11) What general modification(s) of the normal diet are involved?

(12) Why is it necessary to know the sodium content of water at the hospital to which you are assigned?

(13) What general categories of meats are avoided on a sodium restricted diet?

(14) What three categories of vegetables are allowed on a sodium restricted diet?

(15) List eight foods allowed on a regular diet that cannot be used on a diet ordered as "Regular Diet Without Added Salt."

2. Potassium Restricted Diets. The chief function of the kidneys is to filter waste products, such as excess salts, urea, and water, from the blood. When the kidney is no longer able to filter the waste products (including potassium) from the blood, as in chronic renal failure, the dietary intake of potassium is restricted. The degree of restriction from 0 to 1500 mg potassium depends on the severity of the kidney damage. In the case of severe kidney damage, a protein restriction may also be imposed. These diets should be calculated on a daily basis following consultation with the patient.

a. When is the potassium restricted diet prescribed?

b. What potassium restricted diets are listed in AFM 160-8?

c. How is potassium abbreviated?

d. Why does the 0 mg K diet only contain butterballs, butter pudding, koolaid (trade name for classification only) and plain sugar candy?

e. What differences in the foods allowed are there between the K/Restricted and the K/Restricted 20 gm protein diets?

f. Does AFM 160-8 have a listing of the potasium content of foods? Where can it be found in the manual?

3. Calcium Restricted Diets. The 125 mg calcium diet is used for diagnostic purposes or acute stages of hypercalcemia and renal calculi. On this diet, all milk and milk products and calcium rich foods such as cheese, dark leafy vegetables, cream soups are avoided. For long range treatment, the patient is given a 400 mg calcium diet which excludes only milk and cheese products. Research fails to support the total effectiveness of calcium restricted diets in preventing renal calculi but physicians feel the diet may be useful in retarding stone formation.

a. How is calcium abbreviated?

b. When is the calcium restricted diet prescribed?

c. What foods are eliminated on the 125 mg Ca diet?

d. What foods are eliminated on the 400 mg Ca diet?

e. Are the Ca/Restricted diets adequate in all food nutrients? If not, in which nutrients are they different?

DIETS WITH CALORIE MODIFICATIONS

READING ASSIGNMENT

AFM 160-8, chapter 10.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapter 31.

INFORMATION AND QUESTIONS

1. Calorie Restricted Diet. The calorie restricted diet is used to bring about a weight loss or to maintain a desirable weight. Overweight (10 percent above desirable weight) and obesity (15 to 20 percent above desirable weight) are major health problems in the United States and are not fully understood by the general public. This misunderstanding has led to the widespread use of fad diets. The overweight person is much more susceptible to other diseases, such as gout, diabetes, gallbladder disease, hypertension, and coronary atherosclerosis than the individual of desirable weight. A distinction should be made between overweight and obese. An individual can be overweight and not be obese. For example, an athlete with a lot of muscle tissue may be overweight but he would not be

obese. The amount of fat on the body determines the difference between obesity and overweight. Obesity results from a positive energy balance in which more calories are consumed than are burned up by physical activity. A deficit of 500 calories under normal maintenance needs per day should result in a weight loss of approximately one pound per week. Exact weight loss will be influenced by the individual's age, sex, activity, metabolism, and water balance.

The ideal diet achieves the desired weight loss and teaches the patient new eating habits to maintain this new weight level. Old habits should not be allowed to redevelop immediately. In addition, regular daily exercise should be encouraged to increase energy output and to increase muscle tone.

To aid in planning diets and to include all the required nutrients, the foods allowed on the calorie restricted diet are divided up into "exchange" lists. If the diet is planned carefully to include foods from each of the Basic Four Food Groups, an adequate amount of all nutrients will be included in the diet, with the possible exception of the 800 calorie diet. The exchange lists for the calorie restricted diet are based on the diabetic diet exchange lists which will be explained later. Start to memorize what foods are on each "exchange" list and the amount to serve for one exchange. You will be using this daily when you are in a hospital, so start memorizing these now.

a. When are the calorie restricted diets used?

b. Are the calorie restricted diets adequate in all food nutrients? In which nutrients may they be deficient?

c. Why are 1300, 1600, and 1700 calorie diets not listed?

d. How much of a caloric reduction is required to lose one pound?

e. Generally, men will lose weight on a calorie restricted diet of ______________ to ______________ calories per day. Women lose weight on a diet of ______________ to ______________ calories per day.

f. How many calories should a cal/restricted appetizer furnish in each day's menu.

g. In planning a calorie restricted diet, what six points should the diet achieve?

h. What differences are there between an 1800 and a 2000 calorie diet?

i. If a patient on a 1200 calorie diet wanted white bread for lunch instead of a frankfurter bun, could he have it? If so, how much?

j. What types of food are listed in the Supplemental Exchange List on page 10-7 of AFM 160-8?

When and how are these used?

2. High Calorie Diets. The high calorie diet is ordered for patients who are underweight, have prolonged fever, or are recovering from a long illness. This diet is composed of many items from the regular diet with nourishments and food supplements added to meet the individual's caloric requirements. The patient's food attitudes and appetite must be considered because in some cases an increase in calories without an increase in volume of food served is required. Foods of high nutritional value, such as egg nog, milk shakes, and sandwiches should be added rather than "empty" calories, such as candy, pies, cakes, soft drinks, and potato chips. This means offering protein and fortified foods rather than candy and desserts. Suggestions for managing the diet are listed on page 10-10, in AFM 160-8.

a. When are these diets used?

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b. What is a high calorie diet?

c. How many extra calories are required to "put on" one pound per week?

d. Is there an increase of protein recommended on these diets? Why?

e. If you wanted to add 245 calories to a day's diet, what could you add?

f. List six suggestions for using this diet regimen.

(1)

(2)

(3)

(4)

(5)

(6)

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DIABETIC DIETS

READING ASSIGNMENT

AFM 160-8, chapter 11.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapters 30 and 39.

INFORMATION AND QUESTIONS

Diabetes mellitus is a metabolic disorder in which an individual is unable to utilize glucose properly. The pancreas either fails to produce adequate amounts of insulin or none at all. The diabetic condition is manifested in childhood as juvenile-onset type, or in adulthood as maturity-onset type. Juvenile diabetics are difficult to control, unstable, fluctuate rapidly from diabetic coma to hypoglycemia, and require strict dietary management and insulin administration. Adult diabetes usually develops after age 30. These patients do not require insulin and can be controlled by the diet and/or oral hypoglycemic agents.

Whether or not insulin is given, proper diet is an extremely important factor in controlling diabetes. The objectives of the diabetic diet are to:

1. Provide sufficient calories to obtain and/or maintain the ideal body weight of the patient.

2. Adjust the intake of food to the available insulin.

3. Prevent acidosis and shock.

4. Provide an adequate diet for good health and normal activity.

Carbohydrate intake, which is 45 to 50 percent of total calories in the normal diet, is reduced to 40 percent and is given to the patient in controlled amounts over the course of the day. Special diet foods are not required for this diet though concentrated sweets are omitted or limited. The patient is encouraged to eat the foods the rest of his family enjoys on a normal diet but this may require a variation in preparation method. For example, if the family were having meat loaf with gravy and pineapple upside-down cake, the person on the diabetic diet could have the meat loaf without gravy and pineapple slices without the sweet cake.

Carbohydrate distribution is dependent upon the kind and amount of insulin the patient is receiving. The CHO distribution for the various types of insulin is outlined in paragraph 11-3, AFM 160-8.

a. What three specific nutrients are involved in the treatment of diabetics?

b. How many standard diabetic diets are in AFM 160-8?

c. How are diabetic diets ordered?

d. What additional information is required on the diet order?

e. What determines the distribution of CHO?

(1)

(2)

(3)

f. How can the CHO be distributed in diabetic diets?

FOOD EXCHANGE LISTS

To aid in calculating and planning diets for patients with diabetes, the food exchange lists were devised. These lists are groupings of foods which are stated in varying portion sizes, but are approximately equal in CHO, PRO, FAT, and calorie values. The slight variations in nutritive value between the foods on each list are cancelled out on a day-to-day basis when the patient selects a variety of foods. The result of these lists is that one food can be substituted or "exchanged" for any other food on that list. For example, in List 3, 1 small apple or 2 prunes or 1/2 small banana might be "exchanged" for 1/2 cup orange juice. Any of the fruits on the list, in the amounts stated, would provide 10 gm of carbohydrate and negligible protein and fat. It is important that you keep in mind that the words exchange and serving are not synonymous unless applied to the amount of food listed in an exchange list. For example, one banana is usually a normal size serving, but in the "exchange" system, one banana would equal two exchanges or two servings from the fruit list. Therefore, when using the exchange lists, only one-half banana would be served to equal one fruit exchange.

For a better understanding of the Food Exchange Lists we will examine each list individually. Refer to AFM 160-8, paragraph 11-3.

Note the basic format of each list.

- Title of Food Group
- Grams CHO, PRO, FAT per serving
- Total Calories per Serving
- Approximate Measure per Serving
- Different Types of Foods Allowed in Each Food Group

	GRAMS OF			
	CHO	PRO	FAT	CALORIES
Milk List				
Whole Milk	12	8	10	170
2% Low Fat Milk	12	8	5	125
Nonfat Milk	12	8	0	80
Vegetable Lists				
Group A*	0	0	0	0
Group B	7	2	0	36
Fruit List	10	0	0	40

*Negligible Carbohydrate, Protein and Calories if 1 cup or less is used.

	CHO	PRO	FAT	CALORIES
Bread List	15	2	0	68
Meat List	0	7	5	73
Fat List	0	0	5	45

STUDY QUESTIONS

Using the above information and pages 11-4 and 11-7, AFM 160-8, Applied Clinical Nutrition, answer the following questions.

List 1 - Milk Exchanges

How many grams of carbohydrate, protein and fat are calculated for this exchange?

________________ CHO ________________ PRO ________________ FAT

How many calories are in one cup of whole milk? ________________

How many calories are in one cup of nonfat milk? ________________

What must one add to the diet to make up for the difference in the number of calories if one cup of nonfat milk is used in place of one cup of whole milk?

____

How many calories are in one cup of 2 percent low fat milk? ________________

List 2 - Vegetable Exchanges

What two groups of vegetables are there in this list? ________________

How many grams of CHO, PRO, and FAT are in each of the groups?

________________ ________________

How many total calories are in a vegetable from Group A? ________________

How many total calories are in a vegetable from Group B? ________________

How many calories would you get from one-half cup of beets? ________________

List 3 - Fruit Exchange

How many grams of carbohydrate, protein and fat are calculated for this exchange?

CHO ________________ PRO ________________ FAT ________________

How many total calories? ________________

How many exchanges would be consumed if you ate one small banana? ________________

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Three tablespoons of raisins would yield ________ __________ calories and __________ fruit exchanges.

List 4 - Bread Exchange

How many grams of carbohydrate, protein, and fat are calculated for this exchange?

CHO ____________________ PRO ____________________ FAT ______________

How many calories? ____

Are any vegetables included on this list? ____________ Why? ______________

____

Why do you omit two fat exchanges for each one-half cup ice cream? ____________

____

Does a bread exchange include gravy or butter on mashed potatoes? ____________

Butter on crackers or rolls? ______________ Why? ____________________

List 5 - Meat Exchanges

How many grams of carbohydrate, protein, and fat are calculated for this exchange?

CHO ____________________ PRO ____________________ FAT ______________

How many calories? ____

Which food on this list contains carbohydrates? ________________________

How much bacon would be served for one meat exchange? ____________________

____

If a person ate two poached eggs; one slice of bologna; one slice (1 oz.) of American cheese; and a six ounce steak in one day, how many meat exchanges would he have eaten?

____

List 6 - Fat Exchange

How many grams of carbohydrate, protein, and fat are calculated for this exchange?

CHO ________________ PRO ____________________ FAT ______________

How many calories? ____

How much French dressing may be substituted or exchanged for one teaspoon of butter?

____

A sandwich composed of two slices of white bread, [illegible] leaf of lettuce, one slice of tomato, two slices of turkey (60 gms) and one tablespoon of mayonnaise would yield

__________________ calories and

__________________ bread exchanges

__________________ vegetable [illegible] exchanges

__________________ meat exchanges

__________________ fat exchanges

Individual meal patterns for [illegible] AFM 160-8. Meal patterns for diets with carbohydrate [illegible] tbs, and one-sevenths can be found on pages [illegible] 11-9, [illegible] include most of the diets you will encounter. The method by which [illegible] diets are calculated is found on page 11-11. Knowing [illegible] calculate [illegible] important in case a diet is ordered which is not listed in the manual. [illegible] method of calculation can also be used when planning calorie restricted diets. [illegible] using this method will be done in class.

CARBOHYDRATE REPLACEMENT FOR THE DIABETIC DIET

When a patient is being given insulin for the first time, he is carefully watched. Since his exact dosage is unknown at first, orange juice is kept on the ward in case the patient has received too much insulin. An important part of regulating the insulin dosage is the patients' diet.

The distribution of carbohydrate throughout the day in the diet is just as important as the total quantity of carbohydrate consumed. In order for the diabetic diet to be effective in the control of diabetes, the entire meal must be consumed. You will, however, come in contact with diabetic patients who do not eat all that has been prepared for them. Therefore, an adjustment must be made to enable the patient to consume the amount of carbohydrate he refused to eat at mealtime, in a form that will be readily acceptable to the patient. ONLY FOODS WITH CARBOHYDRATE CONTENT ARE CALCULATED FOR REPLACEMENT.

Carbohydrate replacements are to be made in accordance with AFM 160-8, Applied Clinical Nutrition, chapter 11, para 11-2c, page 11-1, and chart 11-16, page 11-13 which indicates:

a. When 15 or more grams of carbohydrate are refused by an adult at a given meal, or 7 grams of carbohydrate or more by a child, replacement should be made immediately.

b. When less than 15 grams of carbohydrate is refused at a given meal, but the total for the day is 15 or more grams, the replacement should be made at bedtime.

Procedure for Making Carbohydrate Replacements

a. Make arrangements with the ward to have the patient's tray available for medical food service so you can see what foods the patient has eaten and which foods remain.

b. Upon seeing the tray with leftover foods, calculate by the exchange system the number of grams of carbohydrate that were refused (not eaten).

Example:

(1) 1800 calorie diebetic diet as served to the patient for dinner. The menu included:

1/2 cup beef bouillon (fat free)
3 ozs roast beef
1 baked potato (2" in diameter)
1/2 cup broccoli
1/2 cup tossed salad w/low cal dressing
2 peach halves
2 dinner rolls
2 tsp butter
coffee

(2) From this menu, you note that the patient has consumed or not eaten the following foods:

Diet	Consumed	Not Eaten
1/2 cup beef bouillon	all	--
3 oz roast beef	2 oz	1 oz
1 baked potato	1/2	1/2
1/2 cup broccoli	all	--
1/2 cup tossed salad w/low cal dressing	all	--
2 peach halves	none	all
2 dinner rolls	all	--
2 tsp butter	all	--
coffee	all	--

(3) Calculation of foods not eaten.

	CHO	PRO	FAT
1 oz roast beef	---	7 gm	5 gm
1/2 baked potato	7.5 gm	1 gm	---
2 peach halves	10 gm	---	---
	17.5 gm		

Total grams of CHO refused - 17.5 gm of CHO.

Therefore replacement must be made immediately since more than 15 gms of CHO was refused.

(4) Conversion for carbohydrate replacement [illegible] refer to table 11-[illegible], page 11-13, AFM 160-8.

Food Refused (with CHO content)	Number of [illegible] of CHO Refused	Unsweetened [illegible] Grapefruit Juice
1/2 baked potato	7.5 [illegible]	3 ozs
2 peach halves	10 [illegible]	[illegible] ozs
	Total	7 ozs

(5) You would make the carbohydrate [illegible] ounces [illegible] unsweetened orange or grapefruit juice.

REMEMBER: YOU ARE [illegible] ONLY [illegible] CONTENT.

CONTROLLED FAT CHOLESTEROL DIETS

READING ASSIGNMENT

AFM 160-8, chapter 12.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapter 42.

INFORMATION AND QUESTIONS

The controlled fat cholesterol diet is used to control blood serum lipid levels in patients who have developed atherosclerosis. Unlike the fat restricted diet which controls the amount of fat eaten, this diet is concerned with the type of fat ingested. A significant percentage of polyunsaturated fatty acids must be substituted for saturated fatty acids; foods rich in cholesterol are restricted.

Calorie restrictions may be incorporated into the fat controlled diet but no diet should be planned below the 1200 calorie level since the type and quantity of the fat required to make such a diet effective would result in a meal pattern difficult for the patient to follow.

You will note in AFM 160-8, chapter 12, that the fat controlled diet is planned by exchange lists similar to the diabetic food exchange lists. For fat controlled diets, however, the meat and fat exchange lists are further divided into Group A and Group B. Meats in Group B are higher in cholesterol and saturated fatty acids, so are allowed in only three of the 14 meat meals per week. Group A meats are lower in cholesterol and saturated fatty acids, so are allowed for 11 of the 14 meat meals per week. The Group A fats list is made up of allowed vegetable oils, salad dressings, and nuts. The Group B fat list is made up of commercial controlled fat margarines which are usually soft so are packaged in small tubs. Regular sticks of margarine are hydrogenated and cannot be used for these diets.

The factor which lowers the cholesterol in the blood is the ratio of polyunsaturated to saturated (the P/S ratio) fat acids. A 2/1 ratio is the most effective. Group A fats contain the most polyunsaturated fatty acids, so must be included in the diet in sufficient quantities to counterbalance the saturated fatty acids from Group B meats and maintain the 2/1 P/S ratio.

In addition to the fat controlled diets listed in AFM 160-8, you may have occasion to prepare and serve the hyperlipoproteinemia diets. These are often referred to as HLP diets. These diets are being used more frequently in some hospitals as more research is being done on the conditions requiring these diets, however they are not listed in AFM 160-8 because they were developed after this manual was printed.

The hyperlipoproteinemia (Hyper = above; lipo - fat; protein; emia = blood) diets are indicated for use in treatment of patients with atherosclerosis or increased cholesterol and lipoproteins in their blood. The lipoproteins are fats, such as cholesterol or triglycerides, combined with specific proteins which circulate in the blood plasma. The fats are insoluble but in combination with proteins are soluble and thus able to be carried in the blood stream. Often you will hear the condition referred to as hyper cholesterolemia or "too much cholesterol in the blood."

There are several causes of hyperlipoproteinemia, heredity, intolerance to CHO, and dietary cholesterol being the major ones. Since there are several causes of the illness, five types of hyperlipoproteinemia diets have been developed.

1. Type I hyperlipoproteinemia (HLP) is very rare, probably being brought about by a genetic deficiency in lipoprotein lipase. This causes an inability to clear dietary fat from the blood stream. It is usually detected in early childhood and the child placed on a low fat diet. Medium chain triglycerides may be used as supplementary fat, but fat intake is restricted to about 25 to 35 grams per day.

2. Type II hyperlipoproteinemia is a more common familial type and usually detected in childhood (often as young as 1 year) if the case is severe. The diet involves lowering cholesterol intake to less than 300 mg per day and modifying the fat intake to a P/S ratio (polyunsaturated to saturated fatty acid ratio) of 2. This means increasing the intake of polyunsaturated fats in the form of corn oil, safflower oil, corn oil margarine, or other oils and decreasing the saturated fat intake. Meats (veal, fish, poultry) are limited to 9 ounces per day and beef, lamb, and ham are limited to three 3 ounce servings per week.

3. Type III hyperlipoproteinemia is a familial type, relatively rare, and usually detected in adulthood after age 20. A peculiar feature is deposits of fat in the palms of the hands. The first diet therapy is to reduce body weight to the ideal level. Cholesterol intake is reduced to less than 300 mg per day, polyunsaturated fats are substituted for saturated fat. CHO and fat intake are each limited to not more than 40 percent and protein intake is increased to 20 percent of total calories. Sugars and sweets are eliminated. The dietary plan and food groups are similar to those used by the patient on a diabetic diet.

4. Type IV hyperlipoproteinemia is a common type and often associated with diabetes mellitus and possibly premature atherosclerosis. As in Type III, the dietary treatment involves reducing the patient to ideal body weight and restricting CHO to not more than 40 percent of the total calories. Intake of polyunsaturated fats is increased and cholesterol intake is restricted to 300 to 500 mg per day. Total fat intake is not more than 30 percent of total calories.

5. Type V hyperlipoproteinemia is a rare type and usually associated with abnormal glucose tolerance and frequently with uncontrolled diabetes. It is usually detected in early adulthood. Diet therapy includes reducing the patient to ideal body weight, increasing protein intake to take 25 percent of total calories, restricting CHO to not more than 50 percent of total calories, and reducing fat to not more than 30 percent of total calories. Cholesterol is restricted to 300 to 500 mg per day and polyunsaturated fats are substituted for saturated fats, causing a higher P/S ratio.

Regardless of which type of diet the patient is placed on, he must understand that full benefits of the diet will not be immediate. Blood lipids will usually be reduced in a few weeks, but full benefits may not be apparent for up to 2 or 3 years. The diet is no guarantee that a heart attack will not occur.

As a diet therapy specialist, you may have to calculate some of these diets. It should not be too difficult since the dietitian will [illegible] CHO, PRO and fat amounts. [illegible] basically a fat controlled diet. Calculations for CHO will be similar to those for a [illegible] diet and patients will substitute polyunsaturated fats for saturated fats in the diet.

The chart below serves as a guide in planning hyperlipoproteinemia diets.

GUIDE TO DIET MODIFICATION FOR HYPERLIPOPROTEINEMIA

	Type I	Type II	Type III	Type IV	Type V
Occurance Manifested	Rare: t Childhood	Relatively common Childhood	Relatively uncommon [illegible]	Most common [illegible]	Uncommon Adulthood
Characteristics of Diet:	Very low fat May supplement with MCT Oil	Very low cholesterol- High P/S Ratio	Weight Reduction Low Cholesterol Balanced Diet	Weight reduction to ideal [illegible]. Moderately high P/S ratio-Modest restriction of carbohydrate.	Weight reduction High Protein Low Fat CHO Restriction when possible
Calories	To maintain desired weight	To maintain desired weight.	1. Reduce to ideal wt. 2. Maintenance Diet	Limited to control weight	
Carbohydrates	Not limited Usually high	Not limited	40% of calories	40% of calories	[illegible] of Calories
Protein	Not limited Usually high	Not limited	High-20% of Calories	Not limited	High 20-25% of Calories
Fat	25-35 gms/day 15-20% of calories	Modified fat intake	40% of calories polyunsaturated fat is substitute for saturated	Not limited other than to control weight	25-30% of calories
Saturated Fat	Not important	Low	Moderately Low	Not emphasized	Not emphasized
Polyunsaturated Fat	Not important	High	Moderate	Not emphasized	Not emphasized
P/S Ratio	Not important	High--2:1	Moderate 1:1	Not emphasized but about 1:1	Less emphasis About.5:1
Cholesterol	Not limited	As low as possible below 300 mg/day	Low-less than 300 mg/day	Moderate 300-500 mg/day	Moderate 300-500 mg/day
Alcohol	Restricted	May be used with discretion	With discretion substitute for carbohydrate	With discretion Substitute for 2 servings carbohydrate	Not recommended

a. What is the controlled fat cholesterol diet used for?

b. What kinds of fat are allowed on this diet and what are the sources of these fats?

c. What general modification(s) of the normal diet are involved?

d. Why are there no diets planned below 1200 calories?

e. Differentiate between an "A" meat and a "B" meat, as listed under the column of foods allowed.

f. How many servings of group "A" meats can a patient have?

g. How many servings of group "B" meats can a patient have?

What is the size of the serving allowed?

h. How are the hyperlipoproteinemia diets abbreviated?

i. How many types of hyperlipoproteinemia diets are there?

j. Hyperlipoproteinemia diets are similar to a ______________________________ diet.

k. List three causes of hyperlipoproteinemia?

l. Which type hyperlipoproteinemia diet is often associated with diabetes mellitus?

m. Which of the five hyperlipoproteinemia diets is the most commonly used?

n. In what treatment are the hyperlipoproteinemia diets generally used for?

DENTAL DIETS

READING ASSIGNMENT

AFM 160-8, chapter 13.

INFORMATION AND QUESTIONS

1. Dental Liquid Diet. Following extensive oral surgery or when a fractured jaw has been immobilized by wiring, the patient will require a diet in liquid form, that is, easily digested and nutritionally adequate. The diet must be adequate in all food nutrients as some patients will stay on it for extended periods of time. The diet consists of regular menu items which have been blended to a liquid consistency and strained. All foods must pass through a straw. Seasonings and spices are used in food preparation to make the diet as palatable as possible. To promote healing and maintain the patient's weight - high protein, high calorie beverages are served with each meal and between meals.

a. When is this diet prescribed?

b. Describe a dental liquid diet.

c. Is this diet adequate in all food nutrients?

d. What general modification(s) of the normal diet are involved?

e. What is served between each meal and with each meal in the dental liquid diet?

Why?

f. How do you prepare a high protein beverage?

g. What are some other uses for a high protein beverage besides its use in a dental liquid diet?

2. Dental Soft Diet. This diet is prescribed for patients recuperating from minor oral surgery, mobilized fractures, mouth lesions, few or no teeth, and for those who have difficulty swallowing. The diet consists of regular menu items which are cooked until soft or are ground so as to require a minimum of chewing. The patients are not usually restricted in their use of spices and condiments. The only modification of the regular diet is that foods be prepared so as to require no chewing.

a. When is this diet prescribed?

b. Describe the dental soft diet.

c. What general modification(s) of the normal diet are involved?

d. How do we prepare meats on a dental soft diet?

PROTEIN RESTRICTED DIETS

READING ASSIGNMENT

AFM 160-8, chapter 14.

Normal and Therapeutic Nutrition, 14th Edition, Robinson, pages [illegible].

INFORMATION AND QUESTIONS

The protein restricted diets are prescribed for patients in various stages of renal or hepatic failure. The protein restriction ranges from 0-5 grams protein to 40 grams protein allowed per day.

When the 0-5 gram protein (very severe) restriction is required, the calories are supplied by fats and carbohydrates alone. The diet must be calculated on a daily basis and may be ordered with a sodium or potassium restriction. This results in a diet inadequate in all nutrients.

If the patient is on the 20 or 40 gram protein diet, he is allowed some meat and milk on the diet. Because of the reduced amounts of protein allowed, the protein sources must be excellent sources of complete proteins to assure the patient of receiving all the essential amino acids.

1. Negligible Protein Diet

   a. When is the negligible protein diet used?

   b. What body organ is impaired in renal failure and hepatic failure?

   c. How much protein does the diet contain?

   d. What types of foods supply the calories?

   e. What food items is this diet composed of?

f. Is the diet adequate in all food nutrients? If not, in which nutrients is the diet inadequate?

g. How do we know how to prepare and serve these food items?

2. 20 Gram Protein Diet

a. What is the 20 gm protein diet used for?

b. What is the idea behind the 20 and 40 gm protein diets?

c. How much CHO should be served each day and for what reason?

d. How much meat is served per day on this diet?

e. How many eggs are served per day on this diet?

f. How much milk is served per day on this diet?

g. How much bread is served per day on this diet?

h. How much vegetables are served per day on this diet?

i. Why are bread and certain vegetables restricted on this diet?

3. 40 Gram Protein Diet

a. Differentiate between the [illegible] and 40 gm protein diets.

b. How much meat is served per day on this diet?

c. How many eggs are served per day on this diet?

d. How much milk is served per day on this diet?

e. How much bread is served per day on this diet?

f. How much vegetables are served per day on this diet?

PEDIATRIC DIETS

READING ASSIGNMENT

AFM 160-8, chapter 15.

Normal and Therapeutic Nutrition, 14th edition, Robinson, chapter 23.

INFORMATION AND QUESTIONS

The dining hall has very little to do with feeding children until they are at the age where they require ground or chopped foods. Infants requiring formula are given a formula which nursing service acquires from supply. When the child starts on strained fruits and baby cereal, these items are supplied from the dining hall.

If the patient requires a tray, the diet order is given with the child's age and the type of diet desired. From the child's age, you can determine the extent of chopping and/or grinding of meat and other foods necessary for the child to be able to eat the diet. If at all possible, the child should be given foods children usually like. Someone responsible for preparing the child's tray should observe the child during mealtime and/or consult with the child's parents to see which foods the child will eat. This is the job of the diet therapy specialist. Some of these foods can be included on the tray. Children do not eat well when away from home and in unfamiliar surroundings, so often it may be necessary to prepare something special to entice him to eat. This may consist of a peanut butter and jelly sandwich or a hamburger or hot dog.

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The childrens ward will keep milk and juice on hand to give the children between meals should they require it.

1. Infant Soft Diet

a. The infant soft diet is used for children under ______________ of age.

b. The infant soft diet I is ordered for children ______________ months in age and consists of what foods?

c. The infant soft diet II is ordered for children ______________ months in age and introduces what foods?

d. The infant soft diet III is ordered for children ______________ months in age.

2. Child Soft Diet

a. The child soft diet is used for children from ________ to ________ years of age, and includes small servings of __________________, ____________________, ________________________, ______________________________.

b. When this diet is ordered, it should include the ______________________.

3. Child Junior Diet

a. The child junior diet is used for children from ________ to ________ years of age and includes ____.

b. Why do we chop the food on this diet?

c. When this diet is ordered, it should include the ______________________.

4. Child Regular Diet

a. The child regular diet is used for children from ________ to ________ years of age and includes ____.

5. List and discuss 10 ideas in planning and serving diets for children that you as a diet therapist could do to make the meal a happy situation or experience for a child.

PHENYLALANINE RESTRICTED DIET

READING ASSIGNMENT

AFM 160-8, chapter 16.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 628-634.

INFORMATION AND QUESTIONS

Phenylketonuria (PKU) is an inborn error of metabolism in which the amino acid, phenylalanine, is not utilized properly. If not treated within the first few weeks of life, brain damage occurs resulting in severe mental retardation, hyperactive behavior, and occasionally, convulsive disorders. A phenylalanine restricted diet must be strictly followed. The objective of the diet is to limit the phenylalanine intake to safe levels and still be adequate in all other nutrients. This is difficult as phenylalanine is one of the essential amino acids and most protein-containing foods contain it also. The basis of the diet for PKU is Lofenalac, a casein hydrolysate from which 95 percent of the phenylalanine has been removed. The child's daily protein, calorie, and phenylalanine requirements are determined according to his age and weight. Then, the Lofenalac requirement to meet these needs is calculated. AFM 160-8 lists 13 phenylalanine restricted diets and each should be ordered by the diet number. Some modifications may be necessary to include the patients' food preferences.

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a. What is the phenylalanine restricted diet used for?

b. What is Phenylalanine?

c. What is Phenylketonuria (PKU)?

d. Where is phenylalanine found and how is dietary treatment affected?

e. How is a phenylalanine restricted diet ordered?

f. What foods are free from phenylalanine?

GLUTEN RESTRICTED DIET

READING ASSIGNMENT

AFM 160-8, chapter 17.

Normal and Therapeutic Nutrition, 14th edition, Robinson, pages 474-479.

INFORMATION AND QUESTIONS

The gluten restricted diet is used when there is a known intolerance to gliadin which is found in gluten. Gluten is a substance found in flour and some cereal grains. This disorder is commonly known as celiac disease in childhood. It is called adult celiac disease or nontropical sprue in later life. Symptoms are diarrhea, steatorrhea, weight loss and loose stools. Elimination of gluten from the diet should be given a trial of at least six weeks. Foods that need to be eliminated are wheat, rye, oats, buckwheat, and barley.

a. When is the gluten restricted diet used?

b. What foods are eliminated from this diet?

PURINE RESTRICTED DIET

READING ASSIGNMENT

AFM 160-8, chapter 8.

Normal and Therapeutic Nutrition, 14th Edition, Robinson, pages 528-30.

INFORMATION AND QUESTIONS

Gout is a hereditary disease occuring principally in males over 30 years of age. Acute attacks of gout is characterized by sudden inflammation and swelling accompanied by severe pain of the joints, especially the knee and ankle joints. With treatment, the acute attack will respond within 24 to 48 hours.

In addition to drugs, a diet low in purines is recommended. Purine is found mainly in meats, dried peas and beans, beef soups, gravies, meat extracts, organ meats, and seafood. This would include generally all flesh foods and extractives from them such as gravies and soups.

a. When is the purine restricted diet used?

b. What foods are high in purines?

c. On a purine restricted diet, ________________ beverages are not allowed, and the diet is low in ________________________________.

d. How much meat can a patient have per day?

e. What meats can a patient have only once a week?

f. What meats can a patient have six times a week?

g. What meats are to be avoided altogether?

h. Why are potato chips, fried potatoes, gravy, rich pastry, ice cream, nuts, and chocolate to be avoided on this diet?

DIETS FOR FOOD ALLERGIES AND INTOLERANCE

READING ASSIGNMENT

AFM 160-8, Chapter 19.

INFORMATION AND QUESTIONS

The term "food allergy" may be defined as an exaggerated specific sensitivity to one or more substances which, in the same amounts, are harmless to other individuals. A substance which produces an allergic reaction is known as an allergen, but you will be concerned only with food allergies.

Tests for allergies may be made either by the "scratch test" (skin test) or basic elimination diet. The basic elimination diet is used to diagnose a food allergy and to identify the food causing the symptoms. At first, all foods are eliminated except one meat, one cereal, one vegetable, one fruit, milk substitute, sugar, and salt. The foods selected should be those which the patient seldom eats. Rice is the cereal of choice; lamb, the meat; unless the patient eats them frequently. The patient remains on this diet for 7 to 10 days, or until some improvement of the condition occurs. If no improvement occurs, the normal assumption is that the condition is not the result of a food allergy. If definite improvement does occur, foods are returned to the diet one at a time. If the patient develops allergic symptoms after eating a new food item, that food is discontinued. The food causing the reaction will be given at a later time to see if the reaction occurs again. If so, this food is eliminated from the diet for good. Children have been known to outgrow their sensitivity to specific foods so perhaps later in life the allergen may be added to the diet again.

Any food may cause an allergic reaction, but protein appears to be the important factor. Some of the most frequent offenders are wheat, milk, eggs, fish, shellfish, strawberries, tomatoes, and chocolate but this list by no means contains all the foods to be considered as allergens. In addition to these foods in their regular forms, the individual with an allergy must analyze prepared foods and food combinations before eating them.

Diets can be prepared for one or more allergies since it is rare that only one allergen is responsible for the reaction. AFM 160-8 outlines diets to be used when the patient is allergic to one or more foodstuffs.

1. Basic Elimination Diet

   a. What is this diet used for?

   b. What general modification(s) of the normal diet are involved?

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c. How long should the patient remain on this diet?

d. How are eliminated foods returned to the diet?

2. Wheat, Egg, and Milk Free Diet

a. When is this diet prescribed?

b. What general modification(s) of the normal diet are involved?

c. Are these allergies always in combination or can a person be allergic to only one of the foods?

DIETS WITH MODIFICATIONS FOR PREGNANCY

READING ASSIGNMENT

AFM 160-8, chapter 20.

Normal and Therapeutic Nutrition, 14th Edition, Robinson, chapter 21.

INFORMATION AND QUESTIONS

During pregnancy the body requires an increased [illegible] of all nutrients to supply the additional demands on the mother by the growing fetus. [illegible] saying that a pregnant woman must "eat for two" is not correct. The need for an [illegible] in the quantity of wholesome, nourishing food does not double, but the amount of milk [illegible] this food supply must be increased about one and one-half times during pregnancy. Very often, controlling the mother's weight gain presents a very real problem. However, a diet with either too many or two few calories and/or nutrients can result in toxemia, pre-eclampsia, and premature birth.

The normal diet places emphasis on an increased intake of protein, calcium, and iron. If the pregnant woman retains fluid, the diet may be ordered with a sodium restriction. If excessive weight gain occurs or the woman was overweight at the time of conception, she will be placed on a calorie restricted diet immediately. However, it is recommended that 1500 be the least number of calories given because below this calorie level, it is difficult to include all the essential nutrients. The physician usually prescribes vitamin and iron tablets for the expectant mother on her first visit, but this is no substitute for a well balanced diet with plenty of fruits and vegetables.

a. Why are special diets planned for use during pregnancy?

b. What diets have been prepared for pregnancy in AFM 160-8? Explain each.

c. What is the minimum calorie level recommended for pregnant women? Why?

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DIETS FOR AEROMEDICAL EVACUATION

READING ASSIGNMENT

AFM 160-8, chapter 21.

INFORMATION AND QUESTIONS

Medical food service personnel are responsible for preparing therapeutic inflight meals for patients entering the aeromedical evacuation system. Regular diets are provided only when inflight kitchen facilities are not available. All diet orders must include the patient's name, grade, diet, and expected number of hours between ground meals. Inflight meal suggestions are outlined in chapter 21.

1. What special ordering information is needed for:

   a. Diet orders -

   b. Regular diets -

   c. Calorie restricted diets -

   d. Na/Restricted diets -

   e. Diabetic diets -

   f. Tube feedings -

g. Diets not mentioned specifically in chapter 21 -

2. What do you find in tables 21-[illegible] through 21-17?

3. How should each inflight meal be labeled?

TEST DIETS

READING ASSIGNMENT

AFM 160-8, chapter 22.

INFORMATION AND QUESTIONS

Test diets are sometimes used to aid in diagnosing certain illnesses. Since the food one eats may affect the level of nutrients in the blood and urine, some foods are omitted so as not to interfere with the results of the diagnostic procedures. AFM 160-8 outlines some of the test diets most frequently used in USAF hospitals.

1. 300 Gram Carbohydrate Test Diet. This diet is given to the patient for 3 days prior to taking a glucose tolerance test. Two meal patterns are outlined in AFM 160-8. The asterisked (*) food items on the meal patterns must be eaten, or adequate substitutes be made for the patient to attain the desired level of carbohydrate intake.

a. The 300 gm CHO test diet furnished 300 gms CHO while keeping __________________ intake low.

b. When is this test diet used?

c. Why are some food items in the recommended meal pattern asterisked (*)?

2. 100 Gram CHO Meal

When is this test diet used?

3. VMA Test Diet. This diet is used in the diagnosis of catecholamine tumors. The patient selects his food from the regular menu but omits foods containing vanilla, bananas, nuts, chocolate, citrus fruits, and tomatoes. Fluids, such as coffee, tea, carbonated beverages, and alcoholic beverages are also omitted. The patient is on this diet for 3 days prior to and also during the 24 hour period during which his urine is collected.

a. From what menu is this diet selected?

b. Which foods are omitted or rest[illegible]d on this diet?

MISCELLANEOUS

1. What information does table 1A-1 provide?

2. When would you need to use this table?

3. What information does table 1A-2 provide?

4. When would you need to use this table?

5. What information does table 1A-3 provide?

6. What information does table 1A-4 provide?

7. What information does Table 1A-5 provide?

8. What information does table 1A-6 provide?

9. What information does table 1A-8 provide?

10. What information does table 1A-10 provide?

11. How can the Glossary on pages A2-1 through A2-10 help you?

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12. What information is contained in pages A3-2 through A3-33 of Applied Clinical Nutrition?

13. How can this information help you?

STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-2d

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

APPLIED CLINICAL NUTRITION

(WRITING THERAPEUTIC DIETS)

September 1975

AIR TRAINING COMMAND

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-2d
September 1975

APPLIED CLINICAL NUTRITION

(WRITING THERAPEUTIC DIETS)

OBJECTIVES

Upon completing this study guide and workbook you will have accomplished the following objectives:

a. Interpret and discuss meal patterns and therapeutic menus.

b. Identify factors involved in modifying or revising diets based upon individual preferences and tolerances.

c. Describe procedures for extending menus.

d. Given AFM 160-8 and a selective menu, write therapeutic menus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below:

(1) Total number of meals required for one day

(2) All menu items allowed on the diet

(3) Food selections made from extended menu whenever possible

(4) Correct format

(5) Correct quantities of menu items allowed

(6) Correct prefixes for diet identification (whenever necessary)

(7) Correct meal pattern used as basis for menu

e. Explain Food Exchange List method of dietary analysis.

f. Compare the various food exchange lists: Composition and types of lists.

g. Using the appropriate exchange lists in AFM 160-8, write menus for five combination diets, correctly including five of the seven items (on the checklist provided) for each menu.

INTRODUCTION

Up until now you have been studying the fundamentals of diet therapy. The primary objective being to familiarize you with the AF diet manual, Applied Clinical Nutrition, AFM 160-8, terminology and abbreviations, forms and records, weights and measures, etc. Now the time has come for you to apply this knowledge. When this is done, we refer to our work as Applied Clinical Nutrition.

Remember that our purpose is to aid the patient in the effective recovery from illness by the use of food as a therapeutic agent.

This supersedes SW 3ABR62231-2-II-2d, May 1975

READING ASSIGNMENT

Read chapter 29 and page 400, Normal and Therapeutic Nutrition by Robinson.

INFORMATION

MEAL PATTERNS AND THERAPEUTIC MENUs

Diet therapy is defined as: the use of food as an agent in effective recovery from illness. The use of food as an agent or medication is just as effective in some situations as any product on the shelf of a pharmacy. Keep in mind that illness may affect the utilization of certain nutrients, therefore therapeutic meal patterns are planned and designed to aid in the recovery process by including greater or lesser amounts of one or more of the food nutrients, depending upon the needs of the patient.

As you become familiar with writing therapeutic diets, you will be using the terms "Meal Pattern" and Therapeutic Menu." It is most important that you understand the difference between the two.

Meal Pattern - a guide to the number of meals and the amounts of food served per meal. You will find a meal pattern for ALL diets in AFM 160-8. These become the basis for writing your therapeutic menu.

Therapeutic Menu - lists of specific foods (or, a menu) the patient will receive. This is based upon the meal pattern for the specific diet being used. It includes serving sizes and the number of feedings served, if applicable.

Following is an example of a meal pattern (based on the Bland IV diet, page 5-9 of AFM 160-8 for a dinner meal) and a therapeutic menu that would be suitable to use on this diet.

MEAL PATTERN	THERAPEUTIC MENU
Bland Soup and Accompaniment	Cream Asparagus Soup and Crackers
3 oz Bland Meat	3 oz Roast Chicken
Bland Potato or Substitute	Macaroni and Cheese
Bland Vegetable	Buttered Green Beans
Bland Salad and Dressing	Tender Lettuce Salad with Mayonnaise
Bread or Roll	Parkerhouse Roll
Butter	Butter
Bland Dessert	Baked Custard
8 oz Milk	8 oz Milk
Sugar - Salt	Sugar - Salt
Decaffeinated Coffee - Cream	Sanka - Cream

FACTORS INVOLVED IN MODIFYING OR REVISING DIETS BASED UPON INDIVIDUAL TOLERANCES AND PREFERENCES

Modified or therapeutic diets are adaptations of the normal diet and should be so planned that they maintain or restore good nutrition in any given situation. The first factor that must be considered is the requirements of the prescribed diet. The requirements of a particular diet - be it bland, calorie restricted, fat controlled, dental liquid or whatever - receive primary consideration.

The limits imposed by the patient's condition may at times alter the standard diet. Take the case of an accident victim with a fractured leg and arm who has been placed on a calcium restricted diet. This diet must be prepared so that very little effort on the part of the patient will be required for cutting up his meat or other chores that require the use of both arms. We would hope that when this patient leaves the hospital he will carry with him the thoughtfulness he received in the careful planning and preparation of his meals.

Other factors to be considered are the limits of the prescribed diet. Most of the diets in AFM 160-8, Applied Clinical Nutrition, have enough leeway for variety and adaptation. These diets were designed to provide the patient with greater selection of foods. This leads us to the human factor of the individual likes and dislikes of the patient. A person who dislikes certain foods will not change his attitude because of a diet. It is therefore our responsibility to plan his diet to include the types of food he enjoys. This is why we emphasize personal, daily contact by diet therapy personnel with each patient. It will be to the advantage of all concerned if diet therapy personnel work with the patient in such a manner that mealtime for him will be a pleasant experience.

During your next lesson on Professional and Patient Relationships, you will become more familiar with the procedures to use in modifying or revising diets.

WRITING THERAPEUTIC MENUs

In Air Force hospitals, when the therapeutic diet menus are written, they are always based upon the regular diet menu whenever possible. There are several advantages to this: when as many foods from the regular diet as possible is used, the patient following a therapeutic diet will receive basically the same food as his fellow patients. And, from a management viewpoint, it is easier for the personnel preparing the food to use the same basic food item whenever possible. For example, if roast chicken were served on the regular diets, it would be more advantageous to prepare sodium restricted roast chicken for the sodium restricted diets, and fat restricted roast chicken for diets which have a restriction on the types and/or amounts of fats allowed, and bland roast chicken for the bland diets than to have sodium restricted hamburgers for the sodium restricted diets fat restricted grilled steaks for the diets restricting fats, and bland roast beef for the bland diets. You can see where it would be less costly to use the same food item whenever possible too, rather than to issue several different meats from the storeroom for the various types of diets. Whenever a diet requires that a food item be different from that served on a regular diet, it is always used so that we are assured the therapeutic diet is correct.

This procedure will also be to your advantage in writing therapeutic diets, for we can use the process of "extending menus."

EXTENDING MENUs

On page 4 you will find a sample of an "extended menu."

As you can see, the regular diet is given in the far left hand column. Many of these same food items can be used on the other diets that appear on the menu form. These are "extended" across the page with an arrow. The arrow continues across the page as long as that particular food item can be used for each successive diet. For example, apple juice can be used in ALL diets for the breakfast meal, so the arrow continues all the way to the end of the page. However, at lunch the regular diets have buttered corn, but this is not allowed on the soft, bland, fiber restricted and fat restricted diets - we have added a vegetable that is allowed on these diets - spinach. The arrow extends across the page as long as spinach is allowed, then it stops. Sodium restricted diets are not allowed spinach, so we have gone back to the food item on the regular diet, corn, to see if that is allowed on sodium restricted diets. Since it is, we use it on the sodium restricted diet menu.

EXTENDED MENU

MONDAY

	*REGULAR	SOFT - BLAND FIBER RESTRICTED	FAT RESTRICTED	CALORIE RESTRICTED	SODIUM RESTRICTED	*CLEAR LIQUID FULL LIQUID	DENTAL LIQUID
BREAKFAST	*APPLE JUICE	—	—	1/3 cup	—	*8 oz	8 oz →
	FRESH ORANGE						
	*HOT FARINA	—	F/R	F/R	Na/R	REG →	BLEND & STR →
	COLD CEREAL						
	*EGGS TO ORDER	NO FRIED EGGS	F/R	F/R	Na/R →	MILK - 8 oz	→
	*GRILLED PORK SAUSAGE	CRISP BACON				HOT COCOA-8 oz	→
	CREAMED BEEF ON TOAST						
	*HASH BROWNED POTATOES						
	*TOAST	WHITE	DRY	DRY	Na/R →	*COFFEE OR TEA	→
	*BUTTER	—	OR MARGARINE	—	Na/R →	*SUGAR & SALT	→
	*JELLY	—	→		Na/R →	*TWO SPOONS	3 STRAWS
DINNER	PEA SOUP W/HAM	CRM POTATO SOUP	CHIX BOUILLON	→		STR CRM POT SOUP	
	*CHEESEBURGER	→	LEAN BEEF PATTIE	—	Na/R →	*CHIX BOUILLON	STR REG SOUP W/STR HAM 8 oz
	HAMBURGER					*JELLO	
	*FRENCH FRIES	BUTTERED POTATOES	BOILED POTATO	F/R →	Na/R	EGGNOG SHAKE (8 oz)	→
	*BU CORN	BU SPINACH	F/R →	F/R CORN	Na/R →		
	*SL TOM-PICKLE-ONION	SL TOM-NO SKIN/SEEDS	SL TOM	SL TOM-PICKLE-ONION	SL TOM & ONION	MILK - 8 oz *FRUIT JUICE- 4 oz	→ →
	*CATSUP MAYO	MAYONNAISE		CATSUP MUSTARD			
	*MUSTARD						STR APPLESAUCE
	TOSSED SALAD						
	ASST JELLO					*COFFEE OR TEA	→
	*HAMBURGER BUNS	HAMBURGER BUN	—	→	Na/R DINNER ROLLS	*SALT & SUGAR	→
	*STRAWBERRY SHORT CAKE	PLAIN CAKE	FRESH BANANA	FRESH WATERMELON	→	*TWO SPOONS	3 STRAWS
SUPPER	BEEF NOODLE SOUP	CRM ASP SOUP	BEEF BOUILLON	→		StrCr Asp Soup	→
	*FRIED CHICKEN	BAKED CHICKEN	—	F/R	Na/R →	*BOUILLON *JELLO	
	*CHIX GRAVY						
	*MASHED POT	Bu	F/R	F/R	Na/R →	VANILLA PUD	SHERBERT SHAKE
	*BUTTERED PEAS	Bu	F/R	F/R	Na/R →	MILK - 8 oz	→
	PEACH & COTTAGE CHEESE					*FRT JUICE- 4 oz	→
	TOSSED SALAD	PEACH & COT CHS SALAD	LETTUCE SALAD/FR DR	TOSS - F/R DRSG	OIL & VINEGAR DR →		
	ASST JELLO					*COFFEE OR TEA	→
	*DINNER ROLLS	—	—	—	Na/R →	*SALT & SUGAR	→
	*COCONUT CREAM PIE	CUSTARD PIE	CND PEACHES	D/P PEACHES	CND PEACHES →	*TWO SPOONS	3 STRAWS

*To nonselective diets

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The advantages of this method of "extending menus" is that it leaves the menu less cluttered than if a food item were written in for each diet on the menu. It is easier to read when you are loading patient food carts. It also saves time in writing menus - drawing the arrow across the page whenever possible takes less time than writing in each food item across the page.

FOOD EXCHANGE LIST METHOD OF DIETARY ANALYSIS

Food Exchange Lists

Food Exchange Lists are a short method of calculating diets that have a restriction in calories, fats, carbohydrates and/or protein. Foods are separated into six groups or "exchange lists," as you have learned in "Diet Modifications." These are:

Milk Exchange List
Vegetable Exchange List*
Fruit Exchange List
Bread Exchange List
Meat Exchange List
Fat Exchange List

*The Vegetable Exchange List is further divided into "A" and "B" vegetables. The "A" vegetables are low in calories and carbohydrates and have no protein. These vegetables have a high water content. The "B" vegetables are more starchy, and are higher in calories and carbohydrates and contain some protein.

Foods are placed on each list depending upon their approximate content of fat, carbohydrate, and protein. All food on each of the six lists will contain approximately the same amount of fat, carbohydrate, and protein in the amounts stated as equaling one exchange. For example, on the bread exchange list, one slice of bread would equal one bread exchange, but one-half cup of rice, or one-third cup of corn would also equal one bread exchange. Any of the foods on the bread exchange list, in the amounts stated, would provide 15 grams carbohydrate, 2 grams of protein, negligible fat and 68 calories. Any food item on the bread exchange list may be "exchanged" or "traded" for any other food ON THIS SAME LIST. You would NEVER "exchange" a food from one list for a food on another list.

Keep in mind that the words exchange and serving are not the same in all instances. For example, in using fresh bananas, a serving is usually one whole banana, but when you refer to the quantity of banana to use as one exchange, you are referring to one-half of a banana. Another example, one hamburger bun is the usual serving, but in the exchange system, one hamburger bun equals two bread exchanges.

Types of Exchange Lists

1. Diabetic

The diabetic food exchange lists provide a liberal, yet moderately accurate method of calculating the diabetic diet. The exchange lists were prepared in 1950 by the American Dietetic Association and gained the approval of the American Diabetes Association and the United States Public Health Service. The diabetic food exchange list is at present the most widely used method for the dietary treatment of diabetes.

The exchange lists are composed of six food groupings: milk, vegetables, fruit, bread, meat, and fat. All servings are in household measures such as standard 8 ounce measuring cups and measuring spoons, except meat, which is stated in ounces, and bread which is listed in slices.

The diabetic food exchange list is found in AFM 169-8, chapter 11, pages 11-4 through 11-7. This exchange list also includes a list of flavorings, spices, and seasonings which may be used freely in the diet.

2. Reduction

Lists of nutritive equivalents of the basic food groups were originally designed to aid in the dietary treatment of diabetes, however, the exchange lists were found to be equally valuable to the patient on restricted calories for weight reduction. When the exchange list is used properly, it allows the patient an adequate variety of foods while staying within the caloric prescription. Some foods are allowed on the reduction diet which are forbidden on the diabetic diet. For instance, you can work in concentrated sweets and desserts on a reduction diet which are forbidden on a diabetic diet.

The exchange lists for reduction diets are found in AFM 160-8, chapter 10, pages 10-3 through 10-7.

3. Fat Controlled

On the fat controlled diet, the amount of fat is maintained at 30 to 40 percent of total calories, but the polyunsaturated fats are substituted for saturated fats whenever possible. Since animal fats are largely saturated, butter, cream, whole milk, all cheese, and as much meat fat as possible must be eliminated from the diet.

The exchange lists for the fat controlled diet contains explicit instructions concerning the foods contained on the milk, meat, and fat lists.

The exchange lists for fat restricted diets is given on pages 12-3 through 12-6 in AFM 160-8.

4. Sodium Restricted

You will recall when the term "sodium" is used it refers only to the sodium ion (Na+) and not to sodium chloride (NaCl). The word sodium chloride refers to "salt."

Milk, meat, fish, fowl, and eggs are naturally high in sodium (refer to table 9-4, page 9-2, AFM 160-8), therefore must be limited in the sodium restricted diet.

Calorie restrictions often accompany sodium restrictions. Note that sodium restricted diets have been planned at 800, 1000, 1200, 1500, 1800, and 2000 calorie levels.

The exchange lists for sodium restricted diets is given on pages 9-3 through 9-5 in AFM 160-8.

5. Bland

You have already learned the principles of a bland diet regimen. These diets have a tendency to be high in calories for many patients. It is not uncommon to encounter a patient who has gained weight while following a bland diet. Consequently, the physician may find it necessary to add a calorie restriction to the bland diet. With this additional restriction, the patient's diet becomes extremely limited. The bland exchange list is not included in AFM 160-8, Applied Clinical Nutrition. One has been added to this study guide and workbook on pages 7, 8, and 9 to enable you to complete the questions and work problems.

6. Combinations

Many times a caloric restriction will be ordered in conjunction with other therapeutic modifications. When this occurs, diet meal patterns are complicated and must be watched closely and accurately prepared.

Example: 1. 1500 cal, 2000 mg Na+, Bland
2. 1800 cal, ADA Fat Controlled
3. 1200 cal, 1000 mg Na+, Soft

FOOD SUGGESTIONS-CALORIE RESTRICTED-BLAND IV DIET

ALLOWED

Milk Exchanges

Whole	1 Cup
Nonfat*	1 Cup
Nonfat Dry Milk Solids*	1/4 Cup
Buttermilk, Nonfat*	1 Cup
Buttermilk, Whole	1 Cup
Evaporated	1/2 Cup
2% Low Fat Milk**	

* Two fat exchanges should be added to the diet when substituted for whole milk.

**One fat exchange should be added when substituted for whole milk.

Vegetable Exchanges

Group A - Portion Size: 1 Cup Cooked

- Asparagus
- Beans, Green
- Beans, Wax
- Celery (Cooked)
- Lettuce (Tender)
- Mushrooms
- Parsley
- Spinach, Chopped
- Squash, Summer
- Cooked or Raw Tomatoes** (no skin or seeds)

**1/2 Cup cooked or raw equivalent equals one portion.

Group B** - Portion Size: 1/2 Cup Cooked

- Beets
- Carrots
- Peas, Green
- Pumpkin
- Squash, Winter

**One-half bread exchange may be substituted for a Group B vegetable.

Fruit Exchanges

Unsweetened or artificially sweetened cooked, canned, frozen (peeled)

Apple (Cooked-no skin or seeds)	1 small
Applesauce	1/2 Cup
Apricot (Peeled Canned)	4 Halves
Banana (Ripe)	1/2 Small
Cherries (Canned)	10 Large
Fruit Cocktail (Canned)	1/2 Cup
Grapefruit (No membrane)	
Half	1 Small
Sections	1/2 Cup

AVOID

Condensed Milk
Canned Cream Soups

Vegetables prepared with fat or sugar.
Pickles, Sweet
Raw Carrots*, Broccoli*, Brussel Sprouts*, Cabbage*, Cauliflower*, Chives*, Cucumber*, Corn*, Eggplant*, Endive*, Escarole*, Garlic*, Greens*, Okra*, Onions*, Peppers*, Pimentos*, Pickles*, Radishes*, Sauerkraut*, Turnips*.
Dried Peas and Beans.

*May be tolerated by some individuals.

Berries*, Cranberries*, Dates*, Figs*, Fresh Grapes*, Fresh Peaches*, Fresh Pears*, Melons*, Pineapple*, Plums*, Prunes*, Raisins*.

*May be tolerated by some individuals.

ALLOWED		AVOID
Grapes (Canned)	12	
Lemon (For garnish and flavoring)		
Nectarine (Peeled, Canned)	1 Large	
Orange, Whole (No membrane)	1 Small	
Sections	1/2 Cup	
Peach, Canned	2 Halves	
Pears, Canned	2 Halves	
Tangerine, Whole (no membrane)	1	
Juices:		
Apple	1/3 Cup	
Blended	1/2 Cup	
Cranberry (Sweetened)	1/4 Cup	
Grape (Sweetened)	1/4 Cup	
Grapefruit	1/2 Cup	
Orange	1/2 Cup	
Pineapple	1/3 Cup	
Prune	1/4 Cup	
Bread Exchanges		
Equal to one bread exchange:		
Bread Crumbs	1/4 Cup	Doughnuts
White or Wheat, Refined	1 Slice	Hushpuppies
Bun, Hamburger	1/2 bun	Icing
Bun, Frankfurter	1 bun	Pastries, Danish
Melba Toast	4 (3 1/2" x 1 1/2" x 1/8")	Sweet Rolls
Rolls, Dinner	1 each	Breads with seeds
Cereal and Cereal Products		
Equal to one bread exchange:		
Cereal, Cooked, Refined	1/2 Cup	
Cereal, Dry (Corn, Rice, Wheat)	3/4 Cup	Sugar and Chocolate Coated Cereals
Rice, White, Cooked	1/2 Cup	
Crackers		
Equal to one bread exchange:		
Biscuit, Uneeda	3 Each	
Graham	2 (2 1/2" sq)	
Oyster	1/2 Cup (20)	
Saltines	5 Each	
Soda	3 Each	
Flour and Flour Products		
Equal to one bread exchange:		
Cornstarch	2 Tbsp	
Flour	2 1/2 Tbsp	
Macaroni, Noodles, Spaghetti, Cooked	1/2 Cup	
Vegetables		
Equal to one bread exchange:		
Hominy Grits, Cooked	1/2 Cup	French Fried Potatoes
Potatoes, Sweet (No skin)	1/4 Cup	Potato Chips
White, Mashed	1/2 Cup	
White, Whole (No skin)	1 (2" diam)	

ALLOWED			AVOID
Meat Exchanges			
1 ounce cooked weight = 1 exchange			Fried Meats or Meat with
Beef, Lamb, Pork and Veal (all lean)			considerable connective
Poultry, all types			tissue or large portions of
Fish, all types, equal to one meat exchange			fat, skin of poultry.
Salmon, Canned	1/4 Cup		Luncheon Meats, Frankfurters,
Tuna, Canned	1/4 Cup		Sausages.
Equal to one meat exchange:			Smoked or Cured Ham
Cheese, Mild	1 ounce		Strong Flavored Cheese, Cheese
Cottage Cheese	1/4 Cup		with added spices and herbs
Egg (Prepared any way	1		Raw Eggs
except fried)			Peanut Butter, Chunky
Peanut Butter	2 Tbsp		
Fat Exchanges			
Avocado	1/8-(4" diam)		
Butter or Margarine	1 tsp		
Bacon, Crisp	1 Slice		
Cream			
Half and Half	3 Tbsp		
Light, Coffee	4 tsp		
Whipping	1 Tbsp		
Sour	2 Tbsp		
Cream Cheese	1 Tbsp		
Mayonnaise	1 tsp		
Oils, all	1 tsp		
Dessert:			
Cake (omit 1 bread exchange)			All others.
Angel Food	3 1/2" x 1/2"		
Sponge, Plain	1 1/2" cube		
Pudding, Commercial, calorie restricted			
(omit 1/2 milk exchange)	1/2 Cup		
Ice Cream (omit 1 bread and 2 fat			
exchanges)	1/2 Cup		
Beverage:			
Decaffeinated Coffee			
Supplemental List:		Calories Per Serving	
Catsup	1 tsp	5	Regular jam and jelly.
Gelatin, Fruit Flavor,	1/2 Cup	2	Regular chocolate and
Sugar Free			fudge sauce.
Jam and Jelly, sugar free	1 tsp	3-6	Regular syrup.
(No seeds)			Regular salad dressing
Maple Syrup, Sugar Free	1 tsp	2	unless exchanged for fat.
Yoghurt, Low Fat, Plain	1 Tbsp	8	Regular carbonated beverages.
Egg White	1 Tbsp	15	
Whipped Topping, Low Cal	1 Tbsp	5	
Mayonnaise, calorie-restricted	1 tsp	6-11	
Miscellaneous:			
Salt			
Spices:			Chocolate
Allspice			Cream Sauce
Cinnamon			Gravy
Mace		400	Bouillon
Paprika			All other spices
Sage			Pepper
Thyme			
Vanilla and other extracts			

CALCULATING A DIABETIC DIET

AFM 160-8, chapter 11, Diabetic Diets, have recommended meal patterns for almost any diabetic diet order you will ever receive in an Air Force hospital. In paragraph 11-9, page 11-8, you have the distribution of exchange lists for diabetic diets from 1000 to 3000 calories per day, with distribution of carbohydrates in 1/3's. In paragraph 11-10, page 11-9, you have the distribution of exchange lists for diabetic diets from 1000 to 3000 calories per day, with distribution of carbohydrates in 1/5's. In paragraph 11-11, page 11-10, you have the distribution of exchange lists for diabetic diets from 1000 to 3000 calories per day, with distribution of carbohydrates in 1/7's.

When we talk about diabetic diets "in 1/3's, in 1/5's, or in 1/7's," we refer to the distribution of the total amount of carbohydrate for each day in these ratios. For example, if a diet were ordered to include 150 grams of CHO, distribution in 1/3's, then the patient would receive 1/3 of the total CHO (1/3 of 150) or 50 grams of CHO at breakfast, 50 grams of CHO at lunch, and 50 grams at supper. If the same diet prescription (150 grams CHO) were for distribution in 1/5's, the patient would receive 30 grams CHO at breakfast, 45 grams at lunch and at supper, 15 grams at midafternoon and 15 grams at bedtime. Refer to the footnote at the bottom of page 11-9, AFM 160-8, for this explanation. This is mathemetically calculated out to be:

Breakfast: 1/5 of 150 = 30 gms CHO

Midafternoon and bedtime nourishments together total 1/5, and are to be divided between the two feedings: 1/5 of 150 = 30 gms CHO

1/2 of this at midafternoon = 15 gms CHO

1/2 of this at bedtime = 15 gms CHO

Lunch and supper have the remaining 3/5's, divided between them: 3/5 of 150 = 90 gms CHO

1/2 of 90 = 45 gms at lunch and 45 gms at supper

If you ever need to calculate a diabetic diet from the beginning, a detailed procedure is given in AFM 160-8, page 11-11. Step-by-step procedures are given below:

Step I

List the minimum amount of milk (2 cups), vegetables (4 servings) - three from exchange list "A," one from exchange list "B," and fruits (3 servings) to be used for the day and fill in the CHO, protein, and fat values, according to the composition of food exchanges.

Step II

Add the CHO column you have entered on the form. Substract this from the total CHO on the diet prescription and divide the remaining CHO by 15 for bread exchanges. Fill in the CHO and protein on the form for bread exchanges.

Step III

Add the protein column you have on the form and substract from the total protein on diet prescription. Divide the remaining protein by seven for meat exchanges. Enter protein and fat from meat exchanges on form.

Step IV

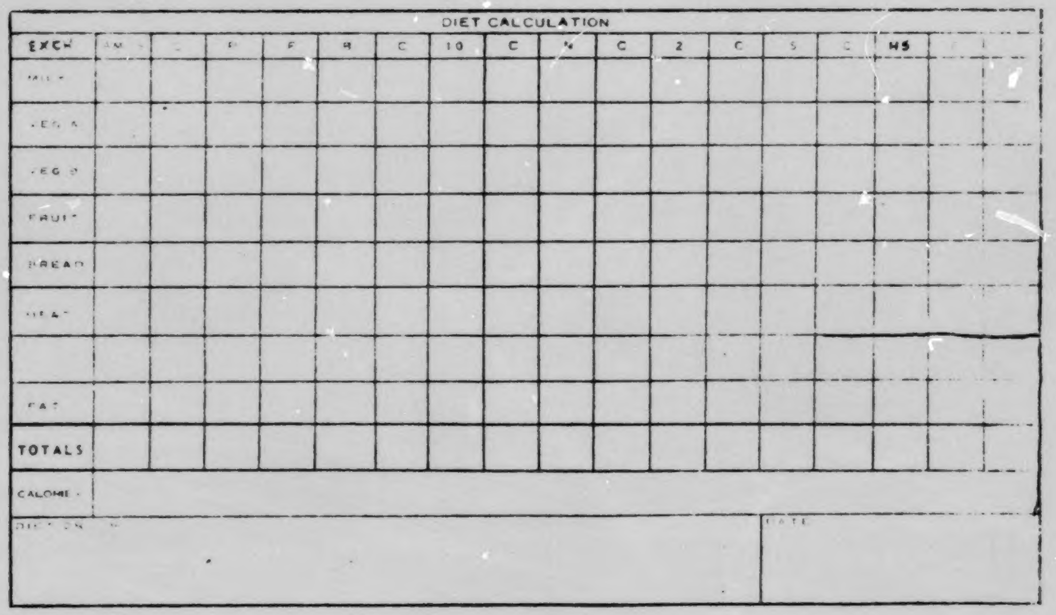
Add the fat column. Substract from total fat of the diet prescription. The remaining fat will then be divided by five for fat exchanges to be used.

Step V

After the total amounts of the food for the day are calculated, they are then distributed into the three meals and H.S. feeding. The CHO should be distributed within 5 gms for each meal.

The diet will be calculated within (+ or -) 5 gms of CHO, 3 gms of protein and the exact amount of fat as shown in Figure 4.

AF Form 1741, Diet Record, can be used for calculating diabetic diets. The reverse side of the form, shown below, is designed for diet calculations using the exchange system.



		CHO	Pro	Fat	Breakfast meal	CHO	1000 hrs feeding	CHO	Noon meal	CHO	1400 hrs feeding	CHO.	Supper meal	CHO	Bedtime feeding	CHO
DIET CALCULATION																
EXCH	AMT	C	P	F	B	C	10	C	N	C	2	C	S	C	HS	C
MILK																
VEG A																
VEG B																
FRUIT																
BREAD																
MEAT																
FAT																
TOTALS																
CALORIES																
DIET ORDER												DATE				

STUDY QUESTIONS

1. Which of the following exchange lists allow 2 Tbsp of cornstarch as a bread exchange?

   a. Fat controlled

   b. Diabetic

   c. Reduction

In questions 2 through 9, supply the type of exchange list(s) which is implied. Choose the exchange list(s) from the following: (Indicate combinations if they apply.)

   a. Fat controlled

   b. Diabetic

   c. Reduction

   d. Sodium restricted

2. ______________________ exchange list(s) does not allow the use of butter.

3. A diabetic patient who requires a limitation of salt in his diet would use the ____________________________________ exchange list(s).

4. Chili sauce, soy sauce, and Worchestershire sauce are supplemental foods allowed on ____________________________________ exchange list(s).

5. Baking powder is not allowed on the ______________________________ exchange list(s).

6. Whole milk and cream are not included on the ______________________ exchange list(s).

7. Salt pork is allowed as a fat exchange on the ______________________ exchange list(s).

8. The overweight patient with no serious medical problems would use the ____________________________________ exchange list(s).

9. Ice cream may be substituted for a bread exchange and two fat exchanges when using the ____________________________________ exchange list(s).

10. List the nutrients that are calculated when using the Food Exchange List Method of Dietary Calculation.

11. Calculate the amounts of CHO, PRO, FAT, and CALORIES in the following meal using the Food Exchange List Method.

	CHO	PRO	FAT	CALORIES
1 oz Ham	____	____	____	____
1 oz Cheese	____	____	____	____
2 slices White Bread	____	____	____	____
1 Tbsp Mayonnaise	____	____	____	____
2 Lettuce Leaves	____	____	____	____
1 Cup Milk	____	____	____	____
1 Orange	____	____	____	____

12. How many exchange lists are found in the Diabetic Food Exchange Lists?

13. Explain the difference in nutrient content between "A" and "B" vegetables.

14. Using the procedure given on page 11-11 of AFM 160-8, plan a 1600 calorie diabetic diet to contain 160 grams CHO, 70 grams protein, and 75 grams fat. Distribution is to be in 1/3s. Use the chart on page 14 for your calculations.

DIET CALCULATION																	
EXCH	AMTS	C	P	F	B	L	10	C	N	C	Z	C	S	C	HS	C	
MILK																	
VEG A																	
VEG B																	
FRUIT																	
BREAD																	
MEAT																	
FAT																	
TOTALS																	
CALORIES																	
DIET ORDER													DATE				

CONTROLLED CALORIE CHART

PROBLEMS 1 through 15

Given AFM 160-8 and a selective menu, write therapeutic nenus for 15 assigned diets using the correct meal pattern and recommended foods, correctly including five of the seven items listed below.

1. Total number of meals required for one day
2. All menu items allowed on the diet
3. Food selections made from extended menu whenever possible
4. Correct format
5. Correct quantities of menu items allowed
6. Correct prefixes for diet identification (whenever possible)
7. Correct meal pattern used as basis for menu

1. On page 16, you are provided with information on an AF Form 1094, Diet Request, as this would be received in the medical food service department from a hospital nursing unit. There are 15 diets listed on this page.

2. Using AFM 160-8, Applied Clinical Nutrition, look up the recommended meal pattern for each of the diets listed on AF 1094 and write a therapeutic menu for each diet, using the spaces below. (The soft diet will be problem 1, the sodium restricted, 500 mgm diet will be problem 2, etc.)

3. Use the extended menu given on page 4 as the basis for these diets. Whenever a food item is available on the extended menu, use it. Write in new or additional food items only if there is nothing on the extended menu that is suitable for the diet you are writing. Show quantities to be used for menu items when necessary.

4. Be sure to include any between-meal feedings that are a required part of the diet. You will have to write in your own suggestions on food items for the between-meal feedings. Be sure you do not repeat a food item that the patient will be receiving at one of the other meals that day. (Example: the bland diets will receive apple juice for breakfast; do not serve this as a between-meal food item.)

5. These problems are a criterion check and must be accomplished in the classroom, under the supervision of an instructor. You will have adequate classroom time to complete all work. Do not copy the work of another student. You must successfully pass this exercise before you are allowed to continue in the course. The criteria for the exercise are listed in the paragraph at the top of the page.

6. All work must be neat and legible.

DIET REQUEST	NURSING UNIT	REQUESTED BY	DAY	DATE
	MED	Capt M.A. Walker	Mon	12 Aug 71

			LOCATION			TYPE OF DIET					
ROOM	BED	NAME	NURSING UNIT	DINING HALL	HOLD	REGULAR	SOFT	FULL LIQUID	LIBERAL CLEAR LIQUID	SURGICAL CLEAR LIQUID	OTHER (Specify)
1	A	Church, Richard J.	X				X				
	B	Ash, Thomas	X								Sodium Restricted, 500 mgm
	C	Tasby, T.C.	X								Bland I
	D										
	E	Moses, Fred	X								Fat Controlled (unrestricted calories)
2	A										
	B	Moore, Billy		X							Bland II
	C	Sutton, Gerald		X							Minimal Residue
	D										
	E	Miles, William	X								Fiber Restricted
3	A										
	B	Gunnville, Robert	X								Bland III
	C	Fisher, Roland	X								1800 Calorie Diabetic Diet
	D										
	E	Prather, Robert		X							Bland IV
4	A										
	B	Alderman, Bobby	X								Potassium Restricted
	C	South, Sherman		X							40 gm Protein
	D	Bearden, Jimmy		X							Dental Liquid
	E										
5	A	Lewis, L.	X								1000 Calorie Diet
	B										
	C	Marshall, Bill	X								Fat Restricted
	D										
	E										

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AF FORM 1094 PREVIOUS EDITIONS OF THIS FORM WILL [illegible]

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STUDY GUIDE AND WORKBOOK 3ABR62231-2-II-2e

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

APPLIED CLINICAL NUTRITION
(PROFESSIONAL AND PATIENT RELATIONSHIPS)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

6

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-II-2e
September 1975

APPLIED CLINICAL NUTRITION
(PROFESSIONAL AND PATIENT RELATIONSHIPS)

OBJECTIVES

Upon completion of this unit of instruction, you will be able to:

a. Describe principles of medical ethics and conduct to follow when dealing with professional staff, patients, visitors, and the public.

b. Explain the psychology of serving patients.

c. Maintain a central diet order file.

d. Explain the purposes and procedures for conducting ward rounds and visits.

e. Interview patients to determine food habits for guidance in menu planning.

f. Modify or revise routine and therapeutic diets based on individual food preferences.

g. Discuss procedures for assisting patients in selecting food items for their diets.

h. Indicate procedures for instructing patients concerning normal and therapeutic nutrition and completing the dietary consultation sheet.

i. Conduct classes on normal and therapeutic nutrition.

j. Discuss procedures for charting in patients records.

k. Describe procedures for assisting disabled ambulatory patients through the cafeteria line.

l. Using another student as a patient role, play a patient interview determining at least six of the eight following elements of the diet history and recording the information on AF Form 1741.

(1) Height and weight

(2) Sex and age

(3) Where and when the patient eats

This supersedes SW 3ABR62231-2-II-2e, May 1975

(4) Food likes and dislikes

(5) Previous diet orders

(6) Occupation

(7) Typical meal patterns

(8) Who prepares the food

INTRODUCTION

The Medical Team is composed of many specialists and the dietitian, the diet therapy supervisor, and diet therapy specialists are very much a part of this team. Each member of the team has a role to play and yours is extremely important. Doctors and nurses look to the dietitian and diet therapy personnel as the experts in the nutritional care of the patient. Modern medical care in the Air Force depends on every person properly performing his function in an efficient, consistent manner because only in this way can the Air Force receive the type of medical support to which it is entitled.

The attitude and conduct of individuals working in a Medical Food Service facility are just as important as the attitude and conduct of a physician or any of his staff. We must always keep in mind that we are working with some very important people.......the patients. Very often the conduct of an individual affiliated with patient care can change the mood and affect the recovery time of the patient. This study guide and workbook is designed to familiarize you with principles of conduct you need to develop in your professional relationships with patients and hospital staff.

INFORMATION

MEDICAL ETHICS

Codes of ethics are considered to be moral laws. They are guiding principles that help a man to decide between right and wrong. The medical profession has a fine code of ethics that has helped to make it one of the most respected of all professions. This code is binding on all physicians. Medical airmen, including Diet Therapy Personnel, regardless of position, must assist and support physicians at all times; therefore, the airmen, too, are to abide by such principles. For that reason, key principles of the medical profession's code, as they affect medical airmen are listed below:

a. Service to humanity is the first consideration:

The medical airman also works for the common good of mankind. He helps patients regardless of their country, party, rank, or religion. The spirit of service must be the controlling factor in his performance of duty.

Persons working in a hospital should have a desire to help people and be able to work well with all types of people. The supervisor sets the tone in his department by promoting the attitude that patients are individuals and not just another necessary nuisance or an extra job to be tolerated. A supervisor should instill in his subordinates that service entails more giving than receiving, especially when working with sick persons. As a professional, you should be interested not only in the welfare of his patient but in the Air Force community as a whole.

b. Conduct must be in accordance with the ideals of the medical profession:

A medical airman also should be of good character, modest, and sober. He conducts himself with propriety. He must do his whole duty without anxiety. He does not try to evade laws or regulations or to assist others in evading them. Medical airmen must uphold the honor and dignity of their position and do nothing to detract from this honor and dignity.

A diet therapy specialist should maintain high standard of conduct just as is expected of a physician, nurse, or dietitian. In the small USAF hospital where no dietitian is assigned, the diet therapy supervisor has the responsibility to abide by the medical profession's and dietitian's codes of ethics. The diet therapy specialist may be asked to assist with community groups and activities. He must demonstrate a high degree of integrity and high standards of professional skill.

c. The patient must not be neglected:

A medical airman has great responsibility towards patients. He will not leave patients without proper attendance. When patients need his assistance he will see that they receive proper care as quickly as possible. He will not ignore them nor make them wait longer than is absolutely necessary.

One duty assigned the diet specialist is to help with the production and service of diets to patients. Many times the patient rejects food for one reason or another. There is an unfortunate tendency for food service personnel to mark him off as a pest and ignore any future requests of this patient. All people find it easier to ignore or put off problems than to resolve them. Patients are not to be put off or given second best because it's easier. This applies to food served them, too. If a menu item is a few servings short and you don't have enough to serve in both the wards and dining room, remember that the patients come first. They will receive the scheduled food while other food is prepared for the cafeteria line. In dealing with diet instructions, remember that you aren't the only busy person. You may have other things to do but temporarily lay them aside and help the patient. He's the reason you have a job. Always give him your best.

d. Medical personnel must be capable, honest, courteous, and a follower of the Golden Rule:

Courtesy in a medical situation is a continuing problem. Medical airmen occasionally are required to give directions, instructions and sometimes orders to personnel of all ranks. It is easy for them to develop an overbearing attitude under such conditions. The antagonism created by arrogant, overbearing personnel is a matter of genuine concern to a medical commander. Airmen, as his representatives, must guard against such tendencies.

When talking with patients on the telephone, he will remember that they are sick and need all of the help he can give them; he will observe carefully the rules of telephone courtesy.

In all you do, exhibit professional skill and be sure you know what you are talking about. Don't try to impress others with what you know by using a lot of big words to cover up your ignorance. If you are unable to answer a question, be honest and admit you don't know but add that you will find out the information. Always be courteous, as you will be dealing with people at all levels of command. The courteous, pleasant person who treats others with respect and fairness will be respected in turn by those he deals with. Much more can be accomplished if you remember this.

e. Medical personnel should neither minimize nor exaggerate the gravity of a patient's condition:

The patient's illness should never be discussed with him or any other individual who is not directly involved in treating the patient. If the patient persists with questions concerning his illness, refer him to his physician for the answers.

The medical airman should give such knowledge as will serve the best interest of the patient. The fears of patients in a hospital cannot be exaggerated. They are afraid that something will be done to them without warning. They may fear dying, suffering, an operation, disability, or disfigurement. Much of this fear can be allayed by medical airmen if they take every opportunity to help patients to adjust readily to hospitalization. Everyone to whom the patient speaks should convey by attitude, manner, and speech his interest in the patient's needs. Good patient relationships reduce nervous tension. This, in turn, reduces emotional reactions that can seriously affect the patient's well-being. Just how to answer a patient's questions always presents a serious problem to a conscientious medical airman. He is anxious to be helpful and to allay the fear of the patients, but sometimes he is uncertain just what to tell them. The following should serve as a guide:

(1) He should not reveal to the patient what is known about the state of his illness; that is the right and the duty of the patient's physician, and of the physician only.

(2) If a medical airman has seen a patient's chart, he should not reveal what he has read there-to the patient nor to anyone else.

(3) If a patient persists in questioning a medical airman, he should report the matter to his medical supervisors, since the doctor may wish to discuss the matter with the patient.

(4) Medical airmen should not tell patients what they know about the general nature of a patient's disease, nor give hints as to other possible diagnoses. Anything the medical airman says may be taken as a fact by an anxious patient.

(5) In social visits and activities, medical airmen should avoid discussion of illnesses or medical problems.

(6) Medical airmen should never try to impress others with their medical knowledge; a little knowledge is truly a dangerous thing.

The medical airman can allay a patient's anxiety in several ways. He can assure him that he has a fine physician who will study his case thoroughly and see that he is given the best of care.

Personal Integrity is defined as the quality of sound moral principles; uprightness, honesty and sincerity. If someone has personal integrity, he has standards and actions that conform to a high moral standard. Another way of saying this is that he will always do what he knows is correct, and is sincere in his efforts to never knowingly do something wrong - whether for personal gain or because it is easier to do it wrongly than rightly.

Loyalty is achieved when the objectives of the hospital become those of the individual. We must give our loyalty and support to the organization and everyone with whom we associate. We must respect and adhere to the professional decisions of others. We must do our share on the Medical Team - no one can function alone. Loyalty should not be a conditional situation - but a circumstance of constancy.

Medical conduct is the manner in which personnel perform to achieve the medical objective of providing proper patient care. We must know what we can and cannot do as far as medical treatment is concerned and also what we should, and should not do. We must perform duties to the best of our ability since this affects the total care of the patient. Individuals working together to accomplish the same objective must develop some form of working relationship. Good relationship can be built only through knowledge and respect for the other person's knowledge and ability and dedication to duty. Let us then look at the Diet Specialists relationship with patients, hospital staff members, and ancillary personnel.

a. The patient - One of the very first people you have a responsibility to is the patient. Remember that you would not have a job if you don't have any patients to care for! The only way to care for them is to have daily contact with them through ward rounds. It is necessary that you pay close attention to written orders and provide the correct diet to the best of your ability. You do no favors to patient's by allowing them foods they are not are not supposed to have, and you do them no favors when you do not take whatever means you must to assure that their diet is correct in every detail. You do them no favors when you notice they are not following their diet correctly and you neglect to inform the Diet Supervisor, Dietitian, Nurse or Physician of your observation. Attitude towards patients is a continuing problem in the hospital. Sometimes our duties tend to make us nervous and upset. Never take any of your emotions out on a patient. Always treat patients as individuals and guests with consideration and understanding. Be sure you never discuss a patient's medical condition or give any information about him to an unauthorized person. Remember that statements to the patient about his diagnosis, medical condition or prognosis are the responsibility of the physician. Don't take it upon yourself to think you are doing a patient a favor by telling him something you know regarding his health. Another point that cannot be stressed enough concerning patients is attutude. Working with people is a huge undertaking. Sometimes it seems that they can be annoying, nerve-wrecking, and sometimes a complete nuisance. We must constantly be checking our attitude in dealing with patients. Remember, we are the representatives of the Hospital Commander, and our dealings with patients will reflect on him. So a constant attitude check is in order.

(1) We should treat patients as individuals and guests.

(2) Patients should be treated with consideration and understanding.

(3) Being confined to a hospital room and knowing you are not well is upsetting enough. Do all you can to keep patients cheerful and contented.

(4) Greet patients with a smile.

(5) Don't bring your problems to the patient.

b. Hospital Staff Personnel - In dealing with staff personnel, we not only mean doctors and nurses, but also ward personnel, administrative personnel, and our own medical food service personnel.

(1) Physician: The physician is involved with the total welfare of the patient. This fact makes it essential to develop a working relationship between the physician, the dietitian, and diet therapy personnel. The physician does not have the time to teach each patient about nutrition and dietary treatment; therefore, he depends on the dietary department to support him in patient care. The physician diagnoses the patient illness and prescribes treatment, including the prescription of a diet. But it is you who takes this prescription and translates it into a nutritionally correct, appetizing, palatable and attractive meal and delivers it to the

patient. This service would also include informing the dietitian and/or nurse whenever a patient is not accepting a diet as he should.

(2) Nurse: The nurse performs the definitive care of the patient and carries out medical aspects of treatment. However, she cannot be expected to handle complex nutritional problems alone. The physician and medical food service personnel are there to assist her. The nurse is invaluable because she can readily observe the patient's food habits, his illness, and his cultural background, all of which may affect his acceptance or rejection of the food served him. This interchanging of ideas and information can only be achieved by cooperation of all departments, pointing out the need for initiating a cordial relationship at the earliest possible time.

(3) Ward Personnel: The primary duty of ward personnel is to provide nursing care for patients. However, they also assist medical food service personnel in the delivery of patient's food trays. Good rapport should be maintained with ward personnel because they can inform you of much pertinent information regarding patient's eating habits.

(4) Administrative Personnel: You really wouldn't think that we would be working at all with administrative personnel, but in fact they perform some very important functions for us. Two of the most important functions are maintaining medical food service accounting records, and receiving money from the sale of cash meal sales. You know very well that we must keep constant contact with anyone dealing with the financial portion of our operation.

(5) Medical Food Service Personnel: These are our people, and are therefore very important. Medical Food Service personnel includes everyone in the department from the dietitian to the mess attendants. All of us are an integral part of the operation--we would be lost without any one of them and we must work with each one of them closely. Preparing food for regular and modified diets is our chief function, and the diet therapy specialists, cooks, and mess attendants perform the labor for this function. They convert the physician's diet order into daily meal patterns which will comply with the nutritional and therapeutic food needs of the patient.

The dietitian is responsible for all operations within the department. Although this individual does not pay your salary, he or she should receive your full support and loyalty. In turn, the dietitian supports the diet therapy specialist. To work successfully with (or for) anyone, you should give them complete allegiance. You must advise the dietitian concerning problems that you know of, hear rumors of, or anticipate.

From this, you can see that the diet therapy specialists job is no small one. You must maintain a balance between management, patients and staff. To overlook one for the other will cause a rift in your organization. Never take either one for granted.

The following points should be remembered by anyone who wants to advance to be a supervisor:

(1) Work Hard - Accept responsibility and don't pass the buck.

(2) Show initiative and ambition but work within the scope of your authority.

(3) Get along with your OIC and NCOIC. Ask them how you can improve yourself.

(4) Get along with other Airmen, NCOs, and Officers. Avoid embarrassing others or putting them on the spot.

(5) Manage your personal life so that it doesn't reflect unfavorably.

(6) Dress appropriately.

(7) Strive for emotional maturity.

(8) Set your goals realistically and prepare for the immediate job ahead.

PSYCHOLOGY OF SERVING PATIENTS

Diet therapy is the use of food as an agent in effecting recovery from illness. When a person is ill, food is often unacceptable to him regardless of how well it has been prepared or how attractively it has been served. The food may be the patients' favorite but he will say "it just doesn't taste good" when asked why he's not eating. There are physiological, psychological, and emotional factors governing food acceptance. Even some medications will affect how foods taste. You should be aware that these factors exist in order to better teach the patient concerning his new diet.

Some patients with whom you come in contact will have a physical inability to tolerate food. Often, following surgery, the patient can tolerate nothing but liquids or semi-liquid foods. This is usually a temporary condition but there are instances when a patient is unable to tolerate some foods, such as strong flavored vegetables, dried foods, or fresh fruits and/or vegetables at anytime. Inactivity often upsets the digestive system and the above mentioned foods may "form gas" or upset the patients' stomach.

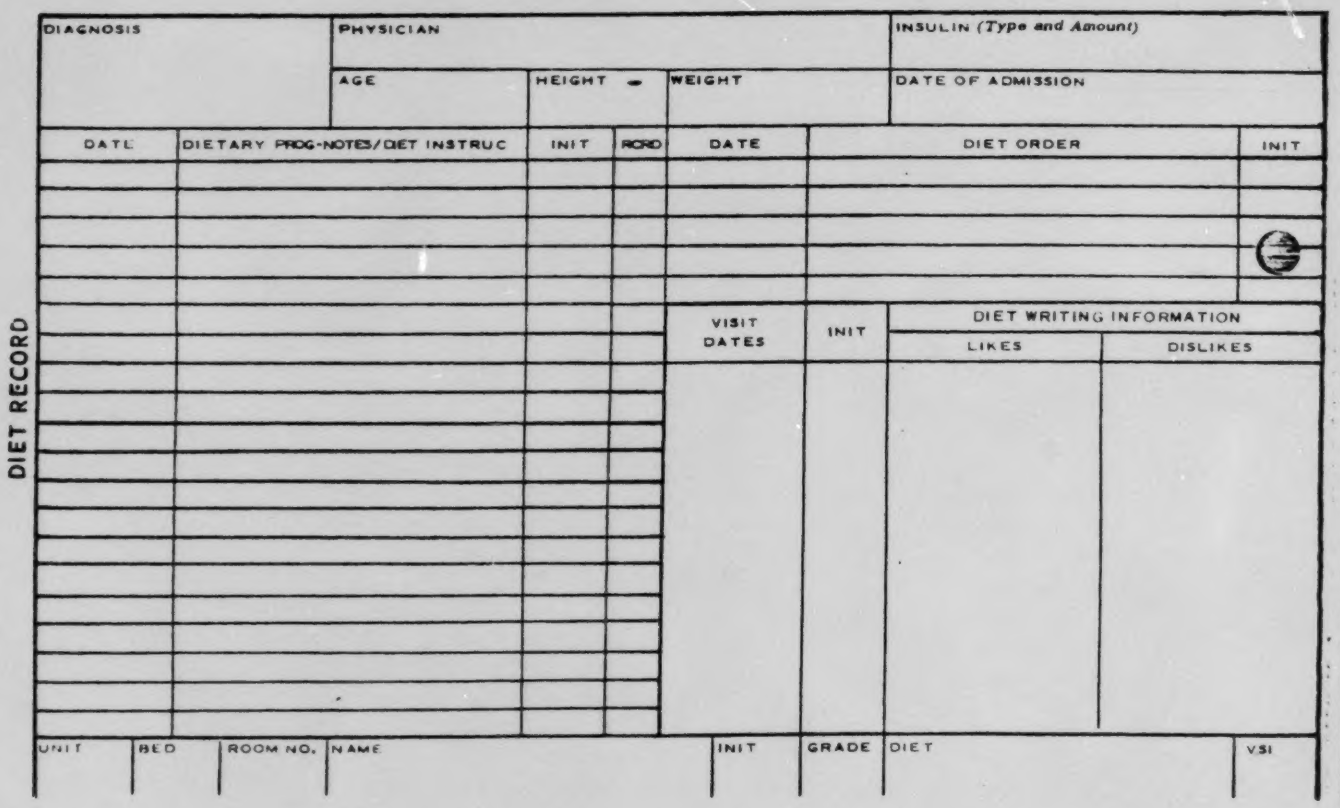
Any individual, taken from his or her natural environment and placed in the unfamiliar environment of a hospital will experience many fears and anxieties. We should remember that the breadwinner of the family will be concerned for his family and how they are managing during his illness. Also, the patient who is usually in charge of the situation has suddenly become dependent upon others and is no longer self-sufficient. A mother will be concerned about her family and possibly her job, if she works outside the home. The hospital patient has lost his privacy and, in many cases, feels a need to preserve his self-respect. These fears and anxieties may be expressed as anger at the food served (including those serving it), treatment received or the people caring for the patient. They may also be expressed as indifference (in actuality he may be very interested but wouldn't let you know it for fear of "losing face"), or by verbal attacks on everything and everyone in sight. Constant petty complaints may be an immature way of covering up for his feelings of insecurity in the face of the changes imposed in his routine schedule. The cardiac patient is often the most cantankerous because he will have to restrict his activities and eating habits for the remainder of his life. He takes his frustrations out on the nearest available person and that may be YOU.

Anger from a patient is best ignored. To help the patient accept his diet you must explain the benefits he will receive from following the diet. Work with him in developing a variety of seasonings or substitutes to use when salt, pepper, or other such foods are not allowed on his diet. You may find that appealing to the individual's pride will help him follow his diet. An example of this approach could be used with overweight persons. Any loss of weight is seen as an accomplishment which gives him or her an incentive to strive harder to achieve the goal of further weight loss.

Consider the patient's state of health when you go to the nursing unit for an interview. Nothing could be more discouraging to a patient who is depressed than for someone to come bouncing in with a cheery "Hi". Possibly the last thing the patient wants to see is a bright, cheery face. On the other hand, if the patient feels especially good it would be the wrong thing to enter his room with a gloomy expression on your face. This patient wants everone to be happy. Strike a happy medium and strive to please the majority of patients. It is a good policy to enter any patients' room with a smile and pleasant appearance. Then, when you've had a chance to judge your patient and sum up his frame of mind, direct your talk and actions to suit his mood. With the patient who is happy and in good spirits, be happy and joking. With the patient who is down in the dumps, be pleasant and ressuring. Perhaps you can offer something extra special from the menu to let him know that you care how he feels. REMEMBER that as a general rule, the more concerned you appear to the patient, the less the patient will ask or demand.

THE CENTRAL DIET ORDER FILE

Each diet office keeps a file which they use at each meal in the preparation of Tray Identification forms for all patients who require some type of modification to their diet while they are hospitalized. AF Form 1741, "Diet Record," is used to complete the required information needed. This form is on a 5" x 8" card. Figure 1 shows the format of this Air Force Form. The AF Form 1741 is maintained in a sequence decided upon by each individual hospital. Usually, a Kardex file is used to arrange the forms neatly and logically within the food service department. Usually, a separate Kardex file is used for each ward or group of wards, and the Diet Record for each patient is maintained either alphabetically or by room number.



DIAGNOSIS
PHYSICIAN
INSULIN *(Type and Amount)*
AGE
HEIGHT
WEIGHT
DATE OF ADMISSION

DATE | DIETARY PROG-NOTES/DIET INSTRUC | INIT | RCRD | DATE | DIET ORDER | INIT

VISIT DATES | INIT | DIET WRITING INFORMATION: LIKES | DISLIKES

DIET RECORD

UNIT | BED | ROOM NO. | NAME | INIT | GRADE | DIET | VSI

Figure 1

Minimum information required is:

1. Patients name
2. Ward, room and/or bed number
3. Diet prescription
4. Special information concerning the patients likes or dislikes or other dietary comments.

This information is mandatory to assure that the correct diet order goes to the right patient. When you have more than one person on a ward with the same last name, it is very easy to make a mistake and send the wrong diet to both of them. WE CANNOT ALLOW THIS TO HAPPEN. IT IS OUR RESPONSIBILITY TO ASSURE THAT SUCH MISTAKES DO NOT HAPPEN. The Diet Record helps us keep the information that we need to work with in planning, calculating, and serving diets in a neat and orderly manner.

An hour or two before each meal, a diet therapy specialist will call each ward to get any diet changes on patients. Sometimes diet changes are made by other locally established means, such as a pneumatic tube or by going in person to each ward to receive changes. As soon as these changes are received, the Kardex containing the Diet Record forms must be updated with the new information so that the changes will go into effect the very next time that patient is to receive a meal or between-meal feeding of any type.

WARD ROUNDS AND VISITS

In order for diet therapy personnel to be able to serve the needs of patients, we must have frequent contact with the patient to be able to determine what these needs are and how we can help them. This is accomplished by frequent ward rounds and visits.....the more frequent the better. We usually think of ward rounds as being a regular time set aside daily to proceed from ward to ward, from room to room or from bed to bed to meet the people we are serving. Diet therapy personnel should try to schedule their ward rounds immediately after a patient has finished a meal. This makes it easier for the patient to associate who you are and what your job is. (Remember that the patient is visited by many, many peoply daily, from all sections of the hospital. It will take them awhile to remember who they are and where they work.) Ward visits are usually thought of as a time when a dietary representative may visit one or two patients individually for some particular purpose. Often times there is very little difference between a ward round or a ward visit. The purpose of both are the same... to serve the patient.

During ward rounds or visits you will attempt to gather information from the patient that will enable you to plan or serve his diet in a better manner.

You would apply the psychology of serving patients, as explained on pages 8 and 9 of this study guide as you visit at their bedsides, interviewing them for their dietary history, including foods liked and disliked, any food allergies they may have, any modified diets they have been on, the extent to which they understand the diet they are now following, etc.

A good interviewer does not just happen. The person who takes dietary histories and visits patients daily must be a person who recognizes and understands the needs and attitudes of the patient. This individual must continually utilize the traits of empathy and insight.

Empathy - "The imaginative projection of one's own consciousness into the being of another individual." This trait is desirable and necessary to understand the problems and behavior of another person.

Insight - "The objective evaluation of information obtained from another individual during an interview." The interviewer must be careful not to evaluate another persons eating habits and attitudes by his own personal standards. He must be aware of factors that are motivating and affecting himself during the interview.

The interviewer should be one who has the ability to put the patient at ease by a warm, friendly manner. A relaxed manner and pleasant personality must be backed up by sincerity, honesty, and an interest in, and love for, all kinds of people. Your own personal interest in the patient and how well you let him know this is a very important factor in determining your success as a counselor and interviewer. Being tactful and conscientious, in addition to possessing the ability to mask surprise and prejudice, is also desirable.

The interviewer must also be a good listener. While listening to what the patient is saying, you can often put insight to work and will find that the things not being said are often more important than those that are said aloud.

Remember that these talents are developed through time and practice.

In addition to the personality traits required, other factors must also be considered:

1. Personal Hygiene - Uniforms must alway be clean. Never wear aprons up to or on the wards. Shoes whould be wiped if they are dirty. A dirty or worn uniform does not draw a good reputation for food service. Hair should be neatly trimmed and combed. Shave and bathe daily for a clean and neat appearance. Body odor has no place for anyone

working in a food service department. No patient can have confidence in an individual who comes to visit him in a dirty, smelly uniform or who looks unkept. Think to yourself: "How do I look through the patients' eyes?"

2. Attitude - The diet therapy specialist will normally visit the patient after he has delivered the food cart to the ward. He is often rushed and has work remaining to be done in the kitchen. It is so easy to forget the feelings of the patient and to put your own needs first, but remember what your particular mission....to take care of the of the needs of the patient. Check your attitude before you go to the ward. Remember these four important points in checking this:

    a. Willingness to serve

    b. Putting needs after those of the patient

    c. Caring about the quality of your work

    b. Be conscientious

3. Rapport with patients - Introduce yourself to the patient, giving your name, duty section and the reason for your visit. Ask the patient pertinent questions concerning his diet, record them, be patient and willing to listen. Given encouragement if it is necessary. The patient may appear to be upset with you when he is really trying to fight the restrictions of his diet or the fact that he is hospitalized. Recognizing his attitude is important.

THE INTERVIEW AND DIET HISTORY

You may ask "Why do I need to interview patients?" There are actually two answers to that question. From the information gained in the interview you can make suggestions on how the individual can correct faulty eating habits or perhaps develop new eating habits. The information obtained can also be used to diagnose nutritional deficiencies, as a basis to teach a new diet, or to plan a menu using as many individual preferences as possible.

An important consideration for an interview is where it is to be held. A patient may be interviewed concerning his diet during your ward rounds and visits at anytime after he is admitted to the hospital and placed on a therapeutic diet. The sooner you interview the patient, the sooner you can start teaching the patient how to accept his new diet. However, the majority of your interviews and diet instructions will be on an out-patient basis. For all formal dietary consultations, whether it is for an in-patient or an out-patient, you must receive a SF 513, Consultation Sheet, signed by the physician, stating the diet he wishes the patient to receive instruction on. These out-patient diet instructions are usually held in the nutrition clinic or medical food service office, but are sometimes held at bedside.

There is a need for some privacy in dietary interviews, no matter how small the enclosure, so that neither the patient or the therapist is distracted. When interviewing a patient at his bedside, there are some points to remember. Always bring your own paper and pencil with you. Never ask a patient if you may borrow his - it shows that you hadn't planned your work to include these essentials. Make sure your paper has a hard back cover that you can write as you stand up. Never sit down by a patients bed - always remain standing. Never lean on or touch anything in a patients room. Don't come right up to the patient to talk to him. Stay at a discreet distance - for your protection and his.

It is well at the very first to introduce yourself to the patient and to make quite clear your role and then build a "bridge of rapport" - an understanding between you and the patient. Each person has his own way of doing this. Sometimes general questions related to the patient concerning such items as his height, weight, age, what he does, where he lives, and so on, will give some background and more especially give you an opportunity to feel your way along with the patient, to get him to talk. Unessential comments given by the patient are often of more help than the answers to any specific questions you may ask. The more general inquiry gives the basis for conversation leading eventually into more specific questions related to food habits.

The preliminaries are extremely important. More time may be spent in these seemingly unrelated excursions in which the patient is getting to know you and you to know him. If these are well done and the patient becomes relaxed and at ease with you, often the actual dietary teaching may be done more quickly.

A relaxed manner (sometimes hard to achieve when you are pushed for time) and a quiet, unhurried "willingness to listen" create a relaxed atmosphere. Too many interviewers tend to chatter to fill the vacuum. Empathy is a great help. The interviewer must have an unjudging attitude and at the same time appear to be interested in what the patient has to say.

Any dietary interview requires time. One of the greatest weaknesses in many attempted interviews is insufficient time to do a satisfactory job. It takes time for the patient to feel at ease with the interviewer.

A dietary history should not be done at the end of an exhausting day when the patient is too tired. If a patient seems too tired or for some other reason is unable to concentrate on the matter at hand, it is probably better just to become acquainted and make a new appointment for a more suitable time.

The nutritional history is a useful tool in diagnosing food habits, teaching, and planning menus for the patient. This is similiar to, but broader in scope, than information gathered for the Diet Record, AF Form 1741. The desired information may be obtained through a series of conversations as you make ward rounds or as a planned, more formal, interview in your office. Wherever the location, there are certain questions for which you must obtain answers before you can instruct the patient concerning his diet. Some of these factors are:

1. Sex, age
2. Height, weight
*3. Cultural background (nationality and religion)
4. Occupation
5. Where, when, and with whom meals are eaten (home, job, box-lunch, etc.)
6. Who prepares meals
7. Shopping, storing, and preparation facilities
8. Economic status
9. Food preferences (favorite foods, disliked foods, etc.)
10. Typical meal patterns
11. Previous diet orders

*Some patients may not be eager to discuss these topics, so they must be handled carefully.

In some cases, your task can be simplified if the patient has been asked to accurately record his food intake for a 24, 48, 72 (or more) hour period prior to your instruction. If the patient has done this accurately you have a good basis for calculations concerning food intake.

If the patient has not been told to record food intake prior to the interview, your questions concerning what he or she usually eats for breakfast, lunch, dinner and between-meal snacks aid in bringing out their food habits, likes, and dislikes. The answers to your questions have also given you an idea of the patient's intelligence level, his ability to follow a diet, and perhaps more importantly, his attitude towards the diet.

The information obtained during the interview should be recorded in some manner. The experienced interviewer may do this on a plain piece of paper and be able to organize and interpret the material recorded. The less experienced interviewer should have a form to complete during the interview. There is no set form to be followed but AF Form 1741, shown in Figure 1, page 11 could be used. A form designed to fit your situation will help you to ask the questions necessary to gain a complete diet history on the patient. This form will be filed with your duplicate copy of the SF 513 for future reference.

Once the answers to your questions have been recorded, you can calculate the nutrients consumed and check your results with the RDA. If adequate essential nutrients are not being consumed by the patient, these food habits can be used as a basis for the diet instruction.

On the basis of all the information gathered in the interview, you would modify or revise the routine or therapeutic diet the patient was following to consider these individual food preferences. On the ward rounds or visits you may assist patients in selecting food items to conform to their diet of selective therapeutic menu's are used. You can also be of assistance to ambulatory patients on modified diets when they can choose from selective food items from the cafeteria line to conform to their diets.

THE DIET INSTRUCTION

It is the responsibility of the physician to prescribe the diet, but it is usually the dietitian or the diet therapy supervisor who is responsible for actually instructing the patient on his diet. As you gain experience and expertise in this area, you, too, will have this responsibility.

All too often a patient is handed a list of foods and told, "Here is what you should eat," or "This is what the doctor has ordered for you," with no regard for previous food habits. During the interview you have determined food preferences and eating habits. As a diet therapy specialist, you should have a working knowledge of the composition of a wide variety of foods and racial, religious, and regional food habits in order to develop diets to fit the wide range of eating habits of AF personnel and their dependents.

One factor often overlooked in planning the diet instruction is allowing sufficient time. Often the patient is ready to go home when the phone rings and you hear "Will someone instruct a patient on his diet? He can go home immediately after he talks with you." You rush up to find the patient dressed and in a wheel chair, ready to go down to his car. You know the patient is in a hurry to leave and has thoughts only of going home so he will not be in a mood to learn about his diet.

To avoid the above situation and for improved teaching results, the patient's "lessons" should begin soon after his or her arrival, or in chronic cases, a few days before he or she goes home. Teaching a patient about his diet is no exception to the rule; repetition aids learning. Teaching for a 10-minute period on three days is better than teaching for a half hour on one day. When short periods are used for instructing the patient, he has an opportunity to mull over in his mind what was told to him, to correlate this with the types of foods he has been eating and to ask questions at the next lesson. You have an excellent teaching opportunity if you make ward rounds while trays are being served and can compare foods on the tray with the meal pattern. This method shows serving sizes as well as allowed foods. When the patient rejects the food tray because unfamiliar foods are on it, you could say, "This menu was especially designed to help you get well." Share nutritional facts with him and he will be more receptive to the diet.

For the final in-patient diet instruction, visit the patient at a time when he is not rushed to, or just returned from, tests or during visiting hours.

Ambulatory hospital patients usually report to the diet clinic or food service office at a scheduled time, either alone or with a group for diet instruction. For the out-patient, the location for the diet instruction depends upon the appointment system used and the layout of the MFS department. Ideally there will be a clinic where you or the dietitian can give instructions without interruption. If a dietitian is not assigned for full-time clinic work, an appointment system where patients on the same or similar diets can be instructed at one time is necessary. You can leave one or two afternoons per week open for these instructions.

At this time the office or classroom may be set up for handling dietary instructions. Allow 15 to 30 minutes per patient, depending on the type of diet. Remember that several shorter instructions are better than one long instruction. Follow-up appointments give the patient a chance to ask questions about problems which have occurred with the diet. It also gives you a chance to evaluate how well the patient knows his diet.

Whether instruction is individual or in a group, there are four goals to be accomplished for effective learning:

1. Determine how much the patient already knows about food and nutrition.

2. Ascertain the economic level and home life of the patient and its effect on his diet, or adaptations of the diet which may be necessary if the patient is eating in a military dining hall.

3. Develop the interest of the patient in his diet. Usually the desire to get well and stay well will stimulate his interest.

4. Explain why a modified diet is important in his individual case.

In teaching a patient a therapeutic diet, each disease has certain characteristics that will need emphasis. The diet must be adapted to the environmental factors learned in the nutrition history and must be in a form clearly and readily understood.

Regardless of the time, place, or type of instruction to be given, some points you need to explain in the instruction are:

1. The importance of measuring foods.

2. Means of choosing the required amounts of fruits and vegetables.

3. Substitutions for meat.

4. Methods of food preparation and preservation.

Following the instruction, it is helpful to give the patient a written copy of his diet plan for his use after hospitalization. This may also serve as a guide to the points which should be emphasized in the interview with the patient. Several illustrative pamphlets are available from various sources free of charge or at little cost. These may be used to add interest in the diet.

Some characteristics of the instruction materials mentioned as desirable are simplicity of language, accuracy and factualness, logical sequence for instruction, and graphic presentation. Be sure all the information the patient needs to know is included. In some ways instruction sheets are similar to an exhibit in which few points should be covered in one section. Important factors in the layout and instruction, such as the quality and color of paper, ink, type size, and format, along with simple instructions are paramount in patient instruction.

You may often have food models, pictures, actual food set on a tray, slides, posters, and booklets which are available to use as part of your instruction. Again, it is a matter of adjusting the materials to the patient. Some materials are written at a level that would be far above the intelligence of some patients and others are to far below the patients' intelligence. Written instructions on a diet are not adequate unless the patient understands them. The dietitian or diet specialist should explain the diet thoroughly so that the patient can understand the reasoning behind the diet.

The interviewer also has the responsibility for teaching patients about their nutritional needs. A warning must be given about the choice of words in teaching patients. Although the diet specialist uses words like carbohydrates, and proteins and so on, the patients may have little or no idea of their meaning or of foods or processes that these words represent. To a lot of people vitamins mean pills. Some don't know which part of the egg is the yolk. Encourage the patient to talk of foods that he knows and enjoys. It is better to teach one fact well than to attempt more than the patient can accept or understand. Effective points can be brought out better through conversation or discussion rather than a lecture presentation. For example, if the patient is not drinking milk instead of admonishing with the remark, "You should drink your milk - it is good for you", you could say, "Here is a valuable food which your body tissues need for repairs to get well".

It is important you thoroughly understand the diet before trying to explain it to a patient. Research of the diet may be necessary for you to become confident enough to instruct a patient. Should any problems arise or questions be asked that you cannot answer with complete confidence, be sure to ask your supervisor for assistance.

As a final check on his comprehension, the patient should be asked to repeat the instruction.

DIET/NUTRITION CLASSES

Nutrition classes are similar to diet instructions. Many of the guidelines used in diet instruction, such as simplicity of language, time, logical sequence, and graphic aids, should be used when conducting group classes in nutrition.

There may be times when a particular group such as "TOPS" (Take Off Pounds Sensibly) or "Weight Watchers" may wish to have a speaker come to talk about some topic on nutrition or dieting. As in diet instruction, you must be thoroughly familiar with the subject you are discussing, which means you must research the material. After you have gained a background in your subject, you must organize the material into a meaningful presentation.

Charts, posters, pictures, pamphlets, and slides help a great deal in teaching nutrition. Many commercial food companies have good posters and colorful material which are adapted from reliable sources. As you organize your material, keep in mind these aids, they may help to clarify your main points and lead toward better understanding.

CONSULTATION SHEET, SF 513

The physician will request a diet instruction by initiating SF 513, Consultation Sheet, to the diet office. Upon completion of the diet instruction, you must complete the consultation section of the SF 513, Consultation Sheet, within 24 hours. This form records the information discussed during the interview and is a permanent part of the patient's medical file. There is no best way to write a summary of the diet instruction, but the data included should be pertinent to treatment of the patient. (see figure 2, page 22). Some data to be included would be the fact that the patient was instructed on the diet and given a handout; the breakdown of CHO, protein and fat, if it's for a diabetic diet; the patient's weight on a reduction diet; special feedings incorporated in the diet; composition of special feedings or food included; a notation for the doctor if the patient says he does not intend to follow the diet; or specific foods the patient does not eat (if it's important to treatment). An example of the latter would be if the patient refused to eat meat and is on a diabetic diet. The sheet is then signed with your signature block to include rank and job title (diet therapy specialist, etc.)

You must keep a log of each diet instruction given to include the diet, patient's name, doctor ordering the diet, and the date given. Future reference is made easier by filing the duplicate copy of the 513 with this log. The census of diet instructions gives information to be included in the department history, for computing work loads, and as a guide to determine the number of copies of the various therapeutic diets to reproduce as handouts in diet instructions.

A Consultation Sheet, SF Form 513, is required for patients attending group diet instructions as well as individual diet instructions. It is the responsibility of the person giving the instruction to complete all form 513s and return them to the records section within 24 hours. If the patient attended a group instruction, it should be indicated on the 513 by the person giving the consultation.

CHARTING IN PATIENTS RECORDS

As required in AFM 168-4, Administration of Medical Activities, patient's tolerance of foods will be annotated on SF 507, "Clinical Record - Report on ________________ or Continuation of SF ________________." The words DIETARY PROGRESS NOTES will be inserted in the title of the form, top and bottom. All dietary progress notes are made consectively on one or a series of SF 507 forms.

Dietary progress notes are required for the nonroutine therapeutic diets prescribed for diabetic, cardiac, seriously ill, controlled fluid, and similiar patients. Notes are not normally required for less complex therapeutic diets. The complexity of the dietary regimen and the patients response to his diet determine the frequency and extent of entries.

When a dietitian is assigned, the dietitian will make the entries on SF 507. When a dietitian is not assigned, nursing service personnel will make the necessary notations on DD 640, Nursing Notes. The diet supervisor or the diet specialist may not make such entries on either form, however if you are aware of special progress or problems that a patient is having in regards to his diet regime, it is your responsibility to bring this to the attention of nursing personnel.

Standard Form 513
Rev. August 1954
Bureau of the Budget
Circular A-32

GPO 648-16-81514-1 471-723

CLINICAL RECORD | **CONSULTATION SHEET**

REQUEST

TO: Dietary Dept

FROM: (Requesting ward, unit, or activity) Medicine Clinic

DATE OF REQUEST 16 Oct 73

REASON FOR REQUEST (Complaints and findings)

Instruct patient on a 1500 Calorie Diabetic Diet c̄ 150 gm CHO, 70 gm Pro and 70 gm Fat CHO distribution is to be divided in 1/5's.

PROVISIONAL DIAGNOSIS

Diabetes Mellitus

DOCTOR'S SIGNATURE Major C. Johnston

APPROVED

PLACE OF CONSULTATION ☐ BEDSIDE ☑ ON CALL

☐ EMERGENCY
☒ ROUTINE

CONSULTATION REPORT

Patient was instructed on the diet as prescribed and given dietary instructional aids to assist them in following the diet correctly, including a Meal Pattern of the prescribed diet and Food Exchange Lists. The patients was already somewhat familiar with the "exchange" system for calculating and following diabetic diets, and was made aware of the importance of accuracy in serving sizes, eating meals at regular hours and use of sugar-free foods.

The CHO breakdown is as follows:

Breakfast:	25 grams		
Lunch:	52 grams		
Supper:	40 grams		
midafternoon:	13 grams		
bedtime:	13 grams	Total:	143 grams

The Meal Pattern used was from AFM 160-8, page 11-9

(Continued on reverse side)

SIGNATURE AND TITLE 1/Lt B. Smith, Registered Dietitian

DATE 16 Oct 73

IDENTIFICATION NO.

ORGANIZATION

PATIENT'S IDENTIFICATION (For typed or written entries give: Name—last, first, middle; grade; date; hospital or medical facility)

REGISTER NO.

WARD NO.

CONSULTATION SHEET
Standard Form 513
513-104

Figure 2

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DISABLED AMBULATORY PATIENTS

When patients are in the final stages of their convalesence, or if they are only slightly, ill and do not need bed rest, they are allowed a great deal of freedom in moving about the public areas of the hospital. Normally, only patients who can move about without assistance are allowed to come to the dining hall for their meals. These patients are called ambulatory patients.

When patients can come to the dining hall for their meals, it saves food service personnel a great deal of time if we do not have to send meals up to the wards. It is of benefit to the patient too. They can enjoy their meals in a pleasant atmosphere, have a chance to socialize with other patients while eating, eat at a table rather than from a bed stand, and choose their foods immediately before eating rather than from a selective menu the day before.

Neither ward personnel nor food service personnel have sufficient manning to assist large numbers of ambulatory patients through the cafeteria line. But from time to time long-term patients who need some assistance may be allowed to come to the dining hall for their meal. Usually these are patients with a broken arm or leg. Other than the fact that they must wear a cast, they are usually in good physical condition. However, an arm cast will prevent them from carrying a tray of food, and a leg cast means they must use crutches to move about...again preventing them from carrying a food tray.

You will be called upon from time to time to assist them through the cafeteria line. This usually entails simply carrying the patients tray from the end of the cafeteria line to his table. If the patient is on a modified diet, you would help him to choose the proper food items to meet his diet requirements.

READING ASSIGNMENT

Read pages 382 thru page 393 in your text, Normal and Therapeutic Nutrition, by C. Robinson.

QUESTIONS AND PROBLEMS

1. Define codes of ethics.

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2. List five key principles of the medical profession's code of ethics as they affect medical airmen.

a.

b.

c.

d.

e.

3. In your own words, explain the responsibilities of the following personnel in relation to their treatment and care of patients.

a. Physician

b. Nurse

c. Ward Personnel

d. Administrative Personnel

e. Medical Food Service Personnel

4. Explain in your own words the psychology that you would use in serving patients.

5. What effects will illness have on the acceptance of food by patients?

6. What is the purpose of the central diet order file?

7. What form is used in the central diet order file?

8. What is the minimum information required in this file?

9. What personnel from medical food service make ward rounds?

10. When is the best time to make rounds?

11. What is the purpose of patient interviews?

12. Before you can give a patient a thorough diet instruction, you need to make a detailed nutritional history of the patient. What information would you need to include?

a.

b.

c.

d.

e.

f.

g.

h.

i.

j.

13. What form must be used by a physician to request a diet instruction?

14. This form must be completed within _______ hours after the diet instruction is performed.

15. What form is used for charting dietary progress notes?

16. Who is authorized to use this form for dietary progress notes?

17. If no dietitian is assigned, how are dietary progress notes charted? Who charts them? Which form is used?

18. Whose responsibility is it to assist disabled ambulatory patients through the cafeteria line in a hospital dining hall?

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE MSDB Wilson 19 Jan 75	INSTRUCTOR
COURSE NUMBER 3ABR62231-2	COURSE TITLE Diet Therapy Specialist
BLOCK NUMBER III	BLOCK TITLE Menu Production & Service

LESSON TITLE Menu Production

LESSON DURATION

CLASSROOM /Laboratory	Complementary	TOTAL
12	2	14

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
14	8Oct74	1a-e

STS/CTS REFERENCE

NUMBER	DATE
STS 622X1	4 December 1974

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
16mm projector overhead projector Screen	N/A	N/A	SW 3ABR62231-1-III-1a Menu Production (Menu Interpretation) SW 3ABR62231-1-III-1b Menu Production (Standardized Recipes) AFM 160-8, Applied Clinical Nutrition (see back)

CRITERION OBJECTIVES AND TEACHING STEPS

1a. Describe factors to be considered when writing selective and cycle menus.

1b. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on checklist 3ABR62231-2-III-1b as possible.

(1) Soft/Bland
(2) Calorie Restricted/Diabetic
(3) Full Liquid
(4) Sodium Restricted
(5) Fat Restricted

1c. Discuss menu costing procedures.

1d. Explain procedures for making menu item substitutions.

1e. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and the total yield of the recipe with a deviation from the correct amounts of no more than 1%.

(Teaching steps listed in Part II)

☆ GPO: 1972 779-396/23

A

413

AFM 146-12, Recipes

Transparencies, Menu Interpretation Set
Transparencies, Standardized Recipes Set
Film, FS127 NEM, Using Standardized Recipes (11 min)

PART II - TEACHING GUIDE

INTRODUCTION (10 Mins)

ATTENTION: "Do you think you could run a dining hall - or any food facility - without a menu?"

The menu is the heart of any food service operation. It is a guideline or a tool that is used to provide the end product of your service. It tells what is to be produced in your food service operation. It would be next to impossible to plan a meal the same day it is to be served. Therefore, it is very important that you know and understand the importance of good menus and thoughtful menu planning.

Working hand-in-hand with the menu is the standardized recipe that you will use to produce the items on the menu. You, as a Diet Therapy Specialist, will be working with standardized recipes daily when you prepare both regular and therapeutic menu items. Many of these recipes will be from the Air Force recipe file (AFM 146-12 for regular food items) and from the Therapeutic Recipe File (AFM 160-18). Recipes from both of these files have already been standardized for use in military food service facilities.

MOTIVATION: But from time to time, there are other recipes that you will use in the hospital food service department which have not been standarized and you will be responsible for standarizing them to meet the requirements of your hospital. Your supervisor will require that only standardized recipes be used to assure consistent quality of produced menu items and to provide production control and supply information for predicting food costs.

A standardized recipe provides a known quantity of food of a desired quality and provides production control to management. When used correctly, it eliminates human error and is of value in planning menus. Once standardized, these recipes will give predetermined information that is very valuable to your supervisor. This unit of instruction will teach you the method used in standardizing recipes and will explain how they are used in menu preparation and menu planning.

OVERVIEW: Following this unit of instruction, you will be able to: (Transparency 1a-c; 2a-c)

1. Define: menu, regular menu, selective menu, therapeutic or modified menu, and cycle menu.

2. Describe factors to be considered when writing selective and cycle menus.

3. Describe menu format and forms.

4. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on Checklist 3ABR62231-2-III-1b as possible.

   a. Soft/Bland

   b. Calorie Restricted/Diabetic

415

   c. Full Liquid
   d. Sodium Restricted
   e. Fat Restricted

5. Discuss menu costing procedures

6. Explain the procedures for making menu item substitutions.

7. Explain the menu as the basis for subsistence requirements.

8. Define a Standardized Recipe.

9. Identify the format and the information included on a standardized recipe card.

10. Explain the relationship of Standardized Recipes to:
   a. Menu Planning
   b. Estimating and forecasting subsistence
   c. Menu Production
   d. Portion control

11. Discuss the pros and cons of using Standardized Recipes.

12. Explain the procedures for increasing and decreasing standardized recipes.

13. Calculate E. P. and A. P. Weights as used on recipe cards

14. Discuss the method used in testing regular and therapeutic recipes for standardization in Medical Food Service.

15. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and the total yield of the recipe with a deviation from the correct amounts of no more than 1%.

BODY (11 hrs 40 mins)

PRESENTATION:

Conduct lesson by:
Lecture/Discussion - 4 hrs
Demonstration - 1 hr
Performance - 7 hrs

Criterion checks will be administered at point indicated in lesson plan.

Use sub-summary sheet, attached at the end of lesson plan, at the point where the lesson ends after the first 6 hours of instruction.

1a. Describe factors to be considered when writing selective and cycle menus.	What are the different types menus?
(1) Define the following terms:	
(a) Menu - a list of foods to be served at a particular meal.	Page 2, SW Transparency # 3
(b) Regular Menu - a list of foods to be served to patients and staff who do not require any diet modification.	
(c) Selective Menu - a menu that offers a choice between two or more food items for each classification on the menu.	
(d) Therapeutic (Modified) Menu - an adjustment of the regular menu to meet a specific dietary requirement as prescribed by a physician or dentist.	
(e) Cycle Menu - a series of daily regular or therapeutic menus designed for a specified period of time such as 28 or 35 days, then repeated day for day.	Transparency # 4
1 Most AF hospitals use a 28 day cycle menu	
2 Four sets of these are planned based on the 4 seasons	
3 Each set is used 3 times	
4 They can be saved and used again the following year.	
(2) Describe the basic factors of menu planning	Refer to pg 4 of SW
(a) Nutritional adequacy - The nutritional needs of the patients and staff can be met by including the recommended quantities of foods from each of the Basic Four Food Groups	Transparency # 5 & # 6

(b) Number to be served

Total number of persons to be fed at each meal will influence the method of preparation to be used

(c) Food habits of those to be served

Include foods which will be acceptable to various regional, ethnic, cultural and religious groups

Such food habits are strongest in areas where ethnic or religious groups of a given background are concentrated.

(d) Personnel available for preparation & their skills

1 The number of food service personnel available to prepare the menu and their skill (or lack of it) is important

2 Total man hours available and the number of personnel on duty at any one time must be considered

(e) Distribution of work

Consider any preparation which must be done in advance (sometimes 1 or 2 full days in advance)

(f) Budget

Most Air Force facilities spend between 40-55% of their earned ration for meats. The cost of each meal is equal to the sum total of the cost of each menu item included.

1 Medical food service departments in the Air Force work on a very tight budget.

2 Ration credit earned is equal to the Hospital Daily Food Allowance (ADFA) times the number of rations served - no more or no less.

(g) Availability of foods

1 Must be available through the base commissary

Allow adequate time for ordering and delivering of special purchase items.

2 Useless to plan a menu around foods that the commissary cannot purchase for you.

(h) Seasonability of Food -

1 Planning to use foods in season means they will be more readily available and cost will be cheaper

2 Flavor is better

(i) Plant Resources

1 Equipment available

2 Storage facilities

3 Preparation, cooking and serving facilities and their arrangement within the food service department

(j) Type of service

1 Table service

2 Cafeteria service

3 Ward service

AF Hospitals usually have cafeteria service and ward service going on simultaneously

(k) Recipes to be used

1 Never place a food item on the menu that does not have a recipe

2 Those preparing menu items MUST use standardized recipes for EACH AND EVERY item on the menu.

(l) Contrast of foods

1 Contrast in color

2 Contrast in texture

3 Contrast in flavor

4 Contrast in temperature

5 Contrast in shape

6 Contrast in preparation method

(m) Day of the week

1 Friday is traditionally the day of the week to serve fish.

2 Always be sure to have fish or seafood available for both lunch and supper on Good Friday and Ash Wednesday

Many religious groups do not eat meat on these two days.

(n) Leftovers

1 Do not purposely plan to have leftovers

2 But when you do have leftovers, use them in such a way that no one suspects that they are leftovers.

Example: If you serve baked chicken today and have some left over, use the meat to prepare chicken croquettes the next day.

3 On some occasions, you know you will have leftovers. These can be planned into the menu.

Example: If you have Roast Turkey today, plan to save the turkey carcasses and have turkey rice soup on the menu for tomorrow

4 Use within 24 hours.

5 When you have leftovers to use, reduce the number of servings of other entrees on the menu.

(o) Holidays

1 Plan special menus for holidays such as Christmas, Thanksgiving, Easter

2 Plan to use one or two special menu items on other holidays of the year:

a Red cake on Valentines Day

b Corned Beef and Cabbage on St Patrick's Day

c Lincoln Log Cake on Lincoln's birthday

d Cherry Pie on Washington's birthday

e Cupcakes with tiny american flags on them for July 4th

INTERIM SUMMARY:

1b. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on Checklist 3ABR62231-2-III-1b as possible.

(1) Describe Menu Format and Forms

(a) Format

1 Worksheet should be large enough to write in the menu for 3 meals/day for a 1 week period

2 Place both entree selections together, both vegetables, etc.

3 Star the first choice item for selective menu

4 Align menu in the following order

Transparency # 7

a Appetizer

b Soup

c Entree

d Starch (Potato)

e Vegetable(s)

f Hot bread

g Salad dressing

h Dessert

i Beverage

(b) Forms	
1 AF Form 679 Cook's Worksheet	Refer to Figure 2 on pg 8 of SW
a A separate AF Form 679 is used for each meal	
b Serves as a guide in planning, preparing, cooking and serving meals	Refer to instructions on how to prepare AF Form 679 on pg 7 of SW
2 Selective menus	Menu's are overprinted onto these AF forms at each base by the base printing plant.
a AF Form 1737 perforated in 1/3's.	
b AF Form 1739 perforated in 1/6's	
3 Color-coded forms	Refer to pg 9 & 10 of SW for the color-coded forms Transparency # 8, 9, 10, 11
(2) Extending the Regular Menu for Modified Diets	Refer to SW on Writing Therpeutic Diets in Block II and pg 10 of this SW.
(a) To keep workload to a minimum, use as many items as possible from the regular menu.	
(b) Use an arrow across the modified menu planning form to save time in repetitiously writing the same food item over and over.	This presents a neater and less cluttered appearance.
(3) Procedure for Extending a Regular Menu for Therapeutic Diets	Refer students to SGWB pg 12, to see the example of an extended menu.
(a) Compare meal pattern in AFM 160-8 and foods allowed for each diet (from Food Suggestion lists in AFM 160-8)	
(b) Utilize all applicable foods from regular menus as listed on modified menu for a particular diet.	
(c) Substitute therapeutic diet items that cannot be used from the regular diet to make the diet complete in accordance with AFM 160-8, Applied Clinical Nutrition.	

Administer Checklist 3ABR62231-2-II-1b at this point

1c. Discuss menu costing procedures

(1) Recipe Method

(a) Used by commercial food service establishments

(b) Cost of each ingredient is figured and totaled for each recipe.

Called raw food cost

(c) Expected yield of the recipe is divided into the cost of the recipe to get the cost per serving

Transparency # 12

(d) To calculate total cost of the menu, all recipes would be calculated for the meal and added together.

(e) This procedure is time consuming, but does give precise information

(f) Requires frequent costing due to changing food prices.

(g) Does aid in planning the budget.

(2) Percentage Method

(a) Used in the Air Force

(b) A percentage of the Daily Food Allowance is established as a guide to the amount of money spent for entree items

About 40% to 50% for meat

Example: If you wanted to keep expenditures for meat within 40% of earned ration value;

Value of hospital daily food allowance = $1.98

40% factor for meat x .40

$0.792

No rations served x 100

$79.20 total to be spent for meat

1d. Explain the procedures for making menu item substitutions

Page 13, SW

(1) Causes

(a) No availability of food items

(b) Cost of foods

(c) Utilization of excess food

(d) Holiday or special occasions

(2) Procedures

(a) Change all copies of cook's worksheet and selective menus

(b) All personnel should be aware of changes

Explain that all personnel involved must be notified of all menu changes. One uninformed cook or storeroom clerk can have an enormous problem when not informed of changes to the menu.

(3) Explain the menu as the basis for ordering subsistence items

(a) Standard portion size

(b) Total yield of recipe

(c) Edible portion (E.P.)

Used when ordering food preparing requisitions

(d) As Purchased (A.P.)

INTERIM SUMMARY

1e. Given a standardized recipe and the number of portions to prepare, increase or decrease the amount of the individual ingredients and total yield of the recipe with a deviation from the correct amounts of no more than 1%.	
(1) Define a standardized recipe: A recipe in which the amounts and proportions of the ingredients and the methods of procedure will consistently produce a high quality product.	Show students AFM 146-12 Recipes Series. Stress that these recipes are already standardized at 100 portions. However any recipe must be standardized to require the number of servings needed in your operation. Also point out AFM 160-18, Therapeutic Recipes and their use.
(2) Identify the format and the information included on a standardized recipe cared	Page 3 and 4, SW Transparency # 13
(a) Heading	Recipe Name
(b) Index designation (File code)	Recipes are filed by classes of foods (soups, pies). Each recipe is preceded by a letter (example: P) which indicates the class of food and followed by a number (ex: 12), which is that recipe's position in that section of the file.
(c) Total yield and/or number	Yield can be expressed in 3 ways: (1) Total recipe yield (6 1/2 gal) (2) Total number portions (100) (3) and/or portion size (1 cup)
(d) Size of portion	
(e) List of ingredients	Listed in the order they are to be added when using the recipe.
(f) Weights and/or measures of ingredients needed	
(g) Brief, concise directions	Method of combining ingredients
(3) Explain the relationship of standardized recipes to:	Page 6, SW
(a) Menu Planning	
1 Add variety to menu	

2 Management is assured quantity and quality of the finished product	Assures the finished product will receive the same quantity and quality each time it is served.
3 Set of standardized recipes helps identify ingredients for planning contrasts in color, texture, etc.	
4 Recipe ingredients indicate a meat is a "whole" or extended entree item.	Explain what"extended" means
(b) Estimating and Forecasting Subsistence Requirements	
1 Estimating quantities of ingredients needed to be ordered for each product.	Weights & Measures column
2 Estimate subsistence costs	Total the estimated subsistence requirements for that certain period. In AF, we use commissary price list
(c) Menu Production	
1 Recipes give precise amounts of each ingredient to use	
2 Give exact procedures for mixing, cooking, etc.	
3 Gives information on preparation time and cooking time.	
4 Precise instructions take the "guesswork" out of cooking. Yields consistent quality and quantity	
(d) Portion Control	
1 Controls costs within the food service operation	
2 Specifies size of each portion	Amount of total product to be served to each customer In civilian restaurants, servings too large lose money and servings too small lose customers

3 Specifies total portions, assuring management of having required quantity of food planned on.	
4 Each customer receives same size serving	
(4) Discuss pros and cons of using Standardized Recipes	Refer SW, pg 7-9
	Show film FS127 NEM, Using Standardized Recipes (11 mins)
(5) Explain the procedures for increasing or decreasing standardized recipes	Refer to page 9, SW Transparency # 14
(a) To adjust recipe yield	Refer to page 10 of SW
1 Obtain a working factor by dividing the number of servings needed by the portions the recipe is to yield	Transparency # 15
2 Multiply the quantity of each recipe ingredient by the working factor	Transparency # 16
3 Convert the fraction of a LB to ounces by multiplying the decimal X16 (ounces per LB)	Transparency # 17
4 Round off this decimal using the chart shown on page 10 of SW	
(b) To use a specific amount of ingredients already available	Refer to pg 11 of SW Transparency # 18
1 Obtain a working factor by dividing the pounds you have to use by the pounds required in the recipe you plan to use.	

2 Multiply the quantity of each ingredient in the recipe by the working factor.

(c) To produce a specific number of smaller portions

Refer to pg 11 of SW
Transparency # 19

1 Divide the desired portion size by the standard portion of the recipe

2 Multiply the servings needed by the answer from Step 1 above.

3 Divide the answer from Step 2 above by the yield portion of the recipe to get the working factor

4 Multiply the quantity of each ingredient in the recipe by the working factor

(6) Calculate E.P. and A.P. weights as used on Recipe cards

Page 15, SW

(a) E.P. = Edible Portion

This is the total portion of a food item which is edible minus the refuse

Refuse = the portion which cannot be used, as skin, seeds, core, peelings.

(b) A.P. = As purchased

This is the total weight of a food item including refuse

(c) To calculate edible portion (E.P.) weight

Ex: Round off to nearest LB
39.47# = 39#

1 Multiply the A.P. weight by the refuse percent to get the pounds of waste

2 Subtract the pounds of waste from the original poundage.

(d) To calculate as purchased (A.P.) weight

Page 16, SW

Ex: Round to next higher LB
39.47# = 40#

1 Subtract refuse percent from 100

2 Divide: Place the % yield over 100 and multiply times the recipe poundage over X.

3 Round off portion of pound to next whole number

(7) Discuss the Method Used in Testing Regular and Therapeutic Recipes for Standardization in Medical Food Service

Refer to page 27, SW

Transparency # 20

(a) Study recipe thoroughly before modifying or standardizing it

(b) Check procedures for correct organization and sequence of work

(c) Simplify, rearrange, combine or eliminate unnecessary procedures	Delete unnecessary procedures and combine procedures when possible.
(d) Write up recipe for testing	List ingredients in order used, and have complete and simple preparation procedures
(e) Test recipe in smallest quantities possible and judge results against standards.	
(f) Obtain total yield and number of portions	
(g) Repeat until desired yield and quality are obtained (standardized)	
1e. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and total yield of the recipe with a deviation from the correct amounts of no more than 1%.	Administer criterion check at this time. These projects are included in the SW, page 32, 33, 34 and 35. These must be accomplished under the supervision of the instructor.

APPLICATION:

1. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and total yield of the recipe with a deviation from the correct amounts of no more than 1%.

2. Students to complete this criterion check in class, under the supervision of an instructor.

EVALUATION:

1. Evaluation is continuous throughout the lesson.

2. Check SW upon completion of lesson.

3. To successfully pass the criterion check, student must have accomplished the work with a deviation of no more than 1% of the correct amounts required.

CONCLUSION (10 mins)

During the last 12 hours of instruction, we have discussed the following objectives:

1. Define: menu, regular menu, selective menu, therapeutic or modified menu, and cycle menu.

2. Describe factors to be considered when writing selective and cycle menus.

3. Describe menu format and forms.

4. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on Checklist 3ABR62231-2-III-1b as possible.

   a. Soft/Bland

   b. Calorie Restricted/Diabetic

   c. Full Liquid

   d. Sodium Restricted

   e. Fat Restricted

5. Discuss menu costing procedures

6. Explain the procedures for making menu item substitutions

7. Explain the menu as the basis for subsistence requirements.

8. Define a Standardized Recipe.

9. Identify the format and the information included on a standardized recipe card.

10. Explain the relationship of Standardized Recipes to:

    a. Menu Planning

    b. Estimating and forecasting subsistence

    c. Menu Production

    d. Portion control

11. Discuss the pros and cons of using Standardized Recipes.

12. Explain the procedures for increasing and decreasing standardized recipes.

13. Calculate E.P. and A.P. Weights as used on recipe cards.

14. Discuss the method used in testing regular and therapeutic recipes for standardization in Medical Food Service.

15. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and the total yield of the recipe with a deviation from the correct amounts of no more than 1%.

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REMOTIVATION AND CLOSURE: Standardized recipes assure consistent quality, provide for production control and supply information for predicting costs because they are "tailored" to specific operations. If you use standardized recipes, you will be amazed at how much easier your job will be.

By planning a menu using standardized recipes, a medical food service facility can be assured of receiving high quality food items at a low economical cost. Careful planning, used with standardized recipes, are a must in any food facility. Thoughtful planning creates good menus.

ASSIGNMENT: No CTT

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END OF DAY SUMMARY

SUMMARY:
1. Restate objectives of the lesson.
2. Emphasize the areas of major importance
3. Use oral questions to determine areas to be retaught.

ASSIGNMENT: No CTT

INTRODUCTION TO NEW DAY'S WORK

1. Arouse student interest
2. Review items of major importance
3. State objectives to be covered on this particular day
4. Continue presentation beginning where it ended the previous day.

LESSON PLAN (Part I, General)

APPROVAL OFFICE AND DATE MSDB Wilson 21 Apr 75	INSTRUCTOR
COURSE NUMBER 3ABR62231-2	COURSE TITLE Diet Therapy Specialist
BLOCK NUMBER III	BLOCK TITLE Menu Production and Service

LESSON TITLE Therapeutic Food Preparation and Patient Tray Service

LESSON DURATION

CLASSROOM/Laboratory	Complementary	TOTAL
1 hr/13 hrs	0	14 hrs

POI REFERENCE

PAGE NUMBER	PAGE DATE	PARAGRAPH
15, 16	11 Apr 75	2a, 2b

STS/CTS REFERENCE

NUMBER	DATE
STS 622X1	6 Dec 74

SUPERVISOR APPROVAL

SIGNATURE	DATE	SIGNATURE	DATE

PRECLASS PREPARATION

EQUIPMENT LOCATED IN LABORATORY	EQUIPMENT FROM SUPPLY	CLASSIFIED MATERIAL	GRAPHIC AIDS AND UNCLASSIFIED MATERIAL
Equipment in the USAF Regional Hospital, Sheppard, Medical Food Service Department	N/A	N/A	SG 3ABR62231-2-III-2a, Therapeutic Food Preparation SW 3ABR62231-2-III-2b Patient Tray Service

CRITERION OBJECTIVES AND TEACHING STEPS

2a. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor:

(1) Prepare and cook a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the students' hospital experience observing the items on checklist 3ABR62231-2-III-2a

(2) Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions.

2b. Using the USAF Regional Hospital, Sheppard, medical Food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on checklist 3ABR62231-2-III-2b.

(1) Assemble and operate equipment for patient tray service area IAW standard local procedures.

(2) Heat or chill dishes and serving equipment IAW standard local procedures.

☆GPO 1972 779-396/23

LESSON PLAN (Part I, General) CONTINUATION SHEET

CRITERION OBJECTIVES AND TEACHING STEPS (Continued)

(3) Correctly set up patient trays IAW tray identification slips.

(4) Check patient trays for accuracy IAW tray identification slips.

(5) Load patient trays on food carts IAW standard loading procedures.

(6) Deliver patient food carts to wards IAW standard local procedures.

(7) Complete final tray assembly on wards IAW standard local procedures.

(8) Pick up and return patient food carts to kitchen IAW standard local procedures.

(9) Unload and clean patient food carts and equipment IAW standard local procedures.

(10) Promote good professional relations with medical personnel, patients, visitors, and the public.

(11) Perform duties with a high standard of professional conduct.

(12) Observe security precautions involved in communications.

(13) Observe security precautions involving the safeguarding of equipment, supplies and money within the Medical Food Service Department.

(Teaching steps listed in Part II)

☆ GPO: 1978 770-000/24

PART II - TEACHING GUIDE

INTRODUCTION (10 Min)

ATTENTION: What is the one most important reason we have a job as a diet therapy specialist? First and foremost, is THE PATIENT. If it were not for the needs of persons who are sick or need help in planning, serving and preparing a therapeutic diet, we would not have a job. (And without a job, how would we support ourselves and our family?)

Quality food is not only satisfying to the patient but is important in restoring his health. Correctly prepared, well seasoned foods which are served in an attractive manner do much to keep patient morale high. At Lowry AFB you learned how to cook foods for regular diets. In the therapeutic nutrition laboratory, you prepared chicken in several ways so it could be used on a variety of diets. You also prepared a tube feeding. The basic principles of food preparation apply for therapeutic diets as well as for regular diets. In addition, you must apply knowledge concerning the modification of regular foods so they are acceptable and correct for specific therapeutic diets.

MOTIVATION: It takes time and special effort to create a pleasing tray, that the patient will enjoy when they receive. The atmosphere created by food service personnel - whether it be in the dining hall or on the hospital wards - is extremely important for patient welfare and for job satisfaction. I feel quite certain that you would not appreciate receiving a tray that was haphazardly assembled. The attractive arrangement of food on the tray in the patient tray assembly area, through the assembling of trays on the wards, to the patients are all essential processes. If we put forth that extra little effort to arrange a tray in a neat and orderly fashion, we can make the stay of a patient in a hospital as comfortable as possible.

Be exact. Follow your standardized recipes when preparing therapeutic diets. It turns guess work into an accurate and complete dish.

OVERVIEW: 1. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor:

a. Prepare and cook a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the students' hospital experience observing the items on Checklist 3ABR62231-2-III-2a

b. Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions.

2. Using the USAF Regional Hospital Sheppard, medical food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on Checklist 3ABR62231-2-III-2b.

43b

a. Assemble and operate equipment for patient tray service IAW standard local procedures.

b. Heat or chill dishes and serving equipment IAW standard local procedures.

c. Correctly set up patient trays IAW tray identification slips.

d. Check patient trays for accuracy IAW tray identification slips.

e. Load patient trays on food carts IAW standard loading procedures.

f. Deliver patient food carts to wards IAW standard local procedures.

g. Complete final tray assembly on wards IAW standard local procedures.

h. Pick up and return patient food carts to kitchen IAW standard local procedures.

i. Unload and clean patient food carts and equipment IAW standard local procedures.

j. Promote good professional relations with medical personnel, patients, visitors, and the public.

k. Perform duties with a high standard of professional conduct.

l. Observe security precautions involved in communications.

m. Observe security precautions involving the safeguarding of equipment, supplies and money within the Medical Food Service

(Body - 13 hours, 40 Min)

2a. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor:	Conduct class by: Lecture/Discussion - 1 hr Performance - 13 hrs Three instructors are needed for these 14 hrs of instruction. Divide students into groups of 4 students, with one instructor assigned to each group. Object 2a & 2b and portions of each object.. are not necessarily taught in sequence. Each group may work on a different objective at different times so as to distribute students throughout the work area in the hospital kitchen. Use Sub-Summary sheet, attached at the end of the lesson plan, at the point where the lesson ends at the end of each day.
(1) Prepare and cook a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the students' hospital experience observing the items on checklist 3ABR62231-2-III-2a	Refer to page 1 of SG
(a) AFM 160-18, Therapeutic Diet Recipes:	NOTE: Never guess when cooking foods for therapeutic diets.
1 Serves as a guide in planning and preparing therapeutic diets.	
2 Prevents mistakes in preparing therapeutic diets.	Why do we use AFM 160-18?
a Deleting ingredients	
b Adding wrong ingredients	
(b) Cooking techniques	Refer to page 2 of SG. Don't just bake or boil a food item, because it is generally not acceptable.
(c) Using an AF Form 1094, Ward Diet Request, submitted to the hospital on the day of this unit of instruction, students will prepare a minimum of five foods that can be used for therapeutic diets.	
1 Cook fresh, canned, dehydrated and/or frozen food	
2 Follow Progressive Cooking techniques	

3 Use AFM 160-18, Therapeutic Diet Recipes, if they are available in the hospital food service department for the therapeutic food items needed.

4 Modify foods by:

  a Flavor constituents

  b Preparation methods

  c Individual food ingredients

5 Portion and serve as directed, using standards of the hospital food service department as a guideline.

6 Proportion, wrap and place food in temporary storage, on the cafeteria and/or patient assembly line.

(d) Annotate on checklist the foods prepared by each student

(e) Prepare tube feeding

(2) Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions. Page 3, SG

(a) Follow manufacturer's operating instructions available in hospital food service department

(b) Adhere to standards established by the hospital food service department

(c) Operate the equipment needed to prepare foods needed for regular and therapeutic diets on the day of instruction. Needs of the hospital will determine what is to be prepared. This is dependent upon types and quantities of therapeutic diets ordered.

(d) Clean the equipment after use, following manufacturer's operating instructions and adhering to hospital food service standards.

(e) Observe safety precautions in using and cleaning equipment.

	This portion of lesson is conducted by: Lecture/Discussion - .8 hr Demonstration - .2 hr Performance - 7 hrs
2b. Using the USAF Regional Hospital Sheppard medical food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on checklist 3ABR62231-2-III-2b.	The criterion objective will be accomplished following the lecture, discussion and demonstration. Student performance will be recorded on checklist 3ABR62231-2-III-2b.
(1) Assemble and operate equipment for patient tray service area IAW standard local procedures.	
(a) Types of tray service	Page 2, SW
1 Centralized - assembly line	
a By conveyor	
b By hand	
2 Decentralized	
(b) Use appropriate serving pans	Page 3, SW
(c) Use appropriate serving utensils	
(d) Line should be set up in order food will be loaded onto food carts	
1 Cold food loaded first	
2 Hot food loaded last	
(e) Proportion, wrap and place food in temporary storage	
	Food carts tend to dry out food

1. Wrap bread in plastic

2. Wrap some types of desserts and salads in plastic

(f) Stress importance of inspecting medical food service facilities and equipment for:

1 cleanliness

2 correct utilization

3 safety factors

4 malfunctions

(2) Heat or chill dishes and serving equipment IAW standard local procedures.

Page 5, SW

(a) Plates, cups and soup bowls are kept warm in electric lowerator.

This is important so that temp of heated foods does not drop when placed on a cold plate.

(b) Plates are chilled by being placed in a refrigerator.

This is important so that the temp of chilled foods does not rise when placed on a hot plate.

(c) Plates could also be placed in the heated and chilled compartments of food carts if heated lowerator and refrigerator were not in immediate vicinity of assembly line.

(d) Chill or heat plates and equipment at least 1 hour in advance of use.

(e) Some foods would be set up in portions to equal the exchange lists for ease in meeting therapeutic diet requirements.

(3) Correctly set up patient trays IAW tray identification slips

Page 5, SW

(a) Patient tray lines need trays, silverware, glasses, cups, condiments, beverages.

1 Tray assembly line always begins with tray, for it holds all china, utensils and tray identification slips.

2 Clean tray cover (if used) is important.

3 Place tray identification slip on after tray cover so that the tray is thereafter planned for a specific patient.
  a AF Forms 1737, and 1739 are used for regular diets.
  b AF Forms 1738, and 1740 are used for therapeutic diets.
  c A large variety of AF Forms are used for the many other diets used in AF hospitals.

4 Arrange china and utensils on tray so that they are in logical sequence and easy to handle

See diagram, page 6, SW

Demonstrate how to set up trays IAW tray slisps. Explain why some items are placed in their chosen positions.

5 Set up isolation trays

Demonstration isolation tray set-up.

6 Select, portion and/or weigh food items for diets and position in storage, on assembly line or on patient trays.

(4) Check patient trays for accuracy IAW tray identification slips

Page 7, SW

  (a) Accuracy of food items according to diet

  (b) Positioning and appearance of food items

  (c) Utensils

(5) Load patient trays on food carts IAW standard loading procedures

Page 8, SW

  (a) Isolation patients require special asepsis techniques

  (b) Check final tray for accuracy

(6) Deliver patient food carts to wards IAW standard local procedures

Page 9, SW

(a) Unplug cart and store cord on hook

(b) Deliver cart to ward without delay

(c) Plug in cart on ward immediately after arrival

(d) Assemble trays quickly to reduce deterioration of foods

(e) Delivered directly to hospital ward by diet therapy specialist

While a student, you will always have an experienced person with you.

(f) Deliver patient trays on heated food carts

Figures 4 and 5 on page 11 of SW shows the most frequently food carts

1 Hot tray and cold tray system

2 One tray system

(g) Delivery times of food carts

Note AFM 168-4 to delivery times never serve earlier than this

1	Breakfast	0700
2	Lunch	1130
3	Supper	1700

(7) Complete final tray assembly on wards IAW standard local procedures.

Refer to page 12 of SW

(a) Combine heated and chilled dishes on one tray

(b) The first trays loaded on the cart should be the first trays unloaded on the wards.

(c) Ward personnel deliver tray to patient's bedside

(d) Ward rounds by diet therapy personnel after delivery of last tray.

(8) Pick up and return patient food carts to kitchen IAW standard local procedures.

Refer to page 12 of SW

(a) Ward personnel responsible for pick up and return to food cart

(b) Diet Therapy personnel return food cart to main kitchen for disassembly and cleaning

(c) Isolation trays are placed in plastic bag by ward personnel, sealed and burned	Page 13, SW Never return an isolation tray on the food cart
(9) Unload and clean patient food carts and equipment IAW standard local procedures	Refer to page 12 and 17 of SW
(a) Dishes are unloaded near dishwashing machine	
(b) Return usable leftover food to appropriate storage area	
(c) Food carts are cleaned immediately following each meal	
(d) Check that cart is operating safely and there are no malfunctions	
(e) Store cleaned carts in cart storage area.	
(10) Promote good professional relations with medical personnel, patients, visitors, and the public	Refer to page 13 of SW Refer students to their instruction on Professional and Patient Relationships.
(a) While distributing and collecting patient menus	
(b) While relating with 1 Medical personnel 2 Patients 3 Visitors 4 Public	
(11) Perform duties with a high standard of professional conduct -	Refer page 13 of SW
Psychology of serving patients	Refer students to their instruction on Professional and Patient Relationships
(12) Observe security precautions involved in communications	Refer to page 13 of SW Review SW on Security in Block I
(a) Patient confidences (b) Military security	
(13) Observe security precaution involving the safeguarding of equipment, supplies and money within the Medical Food Service Department -	Refer to page 14 of SW Explain everyone can be held financially responsible.
Safeguarding subsistence	

APPLICATION: 1. Students will divide into groups of 4, with one instructor assigned to each group.

2. Students will observe standards of food service, sanitation and safety established by the hospital.

3. Students will work with staff personnel assigned to the medical food service department at the hospital, as well as with instructors.

4. Therapeutic diet foods which students prepare will be dependent upon those diets ordered on the day of instruction on AF Form 1094, Ward Diet Request.

5. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor.

   a. Prepare and cood a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the student's hospital experience observing the items on checklist 3ABR62231-2- III-2a

   b. Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions.

6. Using the USAF Regional Hospital, Sheppard, medical food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on checklist 3ABR62231-2-III-2b.

   a. Assemble and operate equipment for patient tray service area IAW standard local procedures.

   b. Heat or chill dishes and serving equipment IAW standard local procedures.

   c. Correctly set up patient trays IAW tray identification slips.

   d. Check patient trays for accuracy IAW tray identification slips.

   e. Load patient trays on food carts IAW standard loading procedures.

   f. Deliver patient food carts IAW standard local procedures.

   g. Complete final tray assembly on wards IAW standard local procedures.

   h. Pick up and return patient food carts to kitchen IAW standard local procedures.

   i. Unload and clean patient food carts and equipment IAW standard local procedures.

j. Promote good professional relations with medical personnel, patients, visitors, and the public.

k. Perform duties with a high standard of professional conduct.

l. Observe security precaustions involved in communications.

m. Observe security precautions involving the safeguarding of equipment, supplies and money within the Medical Food Service Department.

EVALUATION: 1. Continuous throughout the lesson.

2. Students must complete preparation on a minimum of five therapeutic items, following guidelines established on checklist 3ABR62231-2-III-2a.

3. Students must correctly complete 9 of the 13 objectives listed on checklist 3ABR62231-2-III-2b.

CONCLUSION (10 Min)

SUMMARY: 1. Using a hospital food service area, the student will perform all objectives in the POI section under the supervision of an instructor:

a. Prepare and cook a minimum of five foods, using progressive cooking techniques, for diets ordered on AF Form 1094 during the students' hospital experience observing the items on checklist 3ABR62231-2-III-2a

b. Correctly operate and clean equipment used in food preparation IAW manufacturer's operating instructions.

2. Using the USAF Regional Hospital, Sheppard, medical food service facilities, the student will perform all objectives in this POI section under the supervision of an instructor, satisfactorily completing 9 of the 13 items listed on checklist 3ABR62231-2-III-2b.

a. Assemble and operate equipment for patient tray service IAW standard local procedures.

b. Heat or chill dishes and serving equipment IAW standard local procedures.

c. Correctly set up patient trays IAW tray identification slips.

d. Check patient trays for accuracy IAW tray identification slips.

e. Load patient trays on food carts IAW standard loading procedures.

f. Deliver patient food carts to wards IAW standard local procedures.

g. Complete final tray assembly on wards IAW standard local procedures.

h. Pick up and return patient food carts to kitchen IAW standard local procedures.

i. Unload and clean patient food carts and equipment IAW standard local procedures.

j. Promote good professional relations with medical personnel, patients, visitors, and the public.

k. Perform duties with a high standard of professional conduct.

l. Observe security precautions involved in communications.

m. Observe security precautions involving the safeguarding of equipment, supplies and money within the Medical Food Service Department.

REMOTIVATION: This phase of your training, performed in the hospital environment, is one aspect where 90% of the Diet Therapy Specialists leaving this training, can expect to be working - at least part of their time - as they arrive in their new assignment. The expertise required to prepare therapeutic diets is one of the main reasons we have this special career field. How well we perform these tasks often makes the difference as to whether a patient progresses well during his hospital stay or whether he fails to regain his health and strength.

CLOSURE: It takes a bit more time to do things well - reading a recipe so that nothing has been eliminated; cleaning a piece of equipment so that it is sanitary and offers absolutely no change of harboring insects or bacteria; preparing and serving a therapeutic diet that has been prepared very precisely, with exactly the right seasonings, in the correct proportions, to make the diet palatable and therapeutically correct. But once accomplished and knowing that you have done a job well, brings special rewards of their own. In the end, it will reflect credit upon you and upon your department.

Not only can attractiveness in patient tray service increase acceptability, but the entire Medical Food Service facility can enjoy working in an atmosphere of purpose and service to others.

Attractiveness creates desire to do the job even a little better. the rewards of a job well-done, especially one that is a service to others in need, is very compensating.

ASSIGNMENT: Read and answer questions in SW 3ABR62231-2-III-2b and review SW's of Block III for exam.

END OF DAY SUMMARY

SUMMARY	1. Restate objectives of the lesson
	2. Emphasize the areas of major importance
	3. Use oral questions to determine areas to be retaught
ASSIGNMENT	1. Identify study material
	2. Give cause for student to study assignment
	3. Mention method of study

INTRODUCTION TO NEW DAY'S WORK

1. Arouse student interest
2. Review items of major importance
3. State objectives to be covered on this particular day.
4. Continue presentation beginning where it ended the previous day.

STUDY GUIDE AND WORKBOOK 3ABR62231-2-III-1a

DEPARTMENT OF BIOMEDICAL SCIENCES

DIET THERAPY SPECIALIST

MENU PRODUCTION

(MENU INTERPRETATION)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
SHEPPARD AIR FORCE BASE, TEXAS

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-III-1a
September 1975

MENU PRODUCTION

(MENU INTERPRETATION)

OBJECTIVES

Upon completion of this unit of instruction, each student will have accomplished the following objectives:

1. Define: menu, regular menu, selective menu, therapeutic or modified menu, and cycle menu.

2. Describe factors to be considered when writing selective and cycle menus.

3. Describe menu format and forms.

4. Using AFM 160-8, extend a regular menu for the following therapeutic diets including as many items on checklist 3ABR62231-2-III-1b as possible.

   a. Soft/Bland

   b. Calorie Restricted/Diabetic

   c. Full Liquid

   d. Sodium Restricted

   e. Fat Restricted

5. Discuss menu costing procedures.

6. Explain procedures for making menu item substitutions.

7. Explain the menu as the basis for subsistence requirements.

INTRODUCTION

The importance of menu planning to the success of a medical food service operation cannot be overemphasized. Menu planning is largely influenced by the attitudes and abilities of the planner. This individual should recognize that the task is an important one requiring imagination, creative thinking, and a real interest in food.

Diet therapy personnel are required to plan and write menus. They are also required to monitor, modify or adjust menus that have already been written. The objective of an Air Force medical food service department is the production of high-quality foods that not only meet the nutritional needs of the patients and personnel but to see that these are provided within the value of the earned ration. The basis for accomplishing this objective is a well planned menu prepared by cooks following standardized recipes for the menu items listed. Although often more complex, the basic principles of meal planning in a hospital are the same as in other types of food services. The complexity of hospital food service evolved because for each service period, (breakfast, lunch, and supper) foods must be provided for many kinds of diets, ranging from liquid to sodium, fat and calorie restricted, to bland.

This supersedes SW 3ABR62231-2-III-1a, May 1975

INFORMATION

MENU TERMS DEFINED

Before menu planning can be discussed, a few terms must be clearly understood by all concerned. The following are definitions of some of these important terms:

1. Menu. To the patient and hospital staff, the menu is a list of foods to be served at a particular meal. To diet therapy personnel, the menu is also a blueprint for action to be taken while preparing the meal. From the menu each individual knows which foods to prepare. The menu is the basis for food production.

2. Regular menu. A listing of foods to be served to patients and staff who do not require any modification to their diet. The regular menu is the basis for the preparation of the selective menu.

3. Selective menu - A menu that offers a choice between two or more food items for each classification (entree, dessert, salad, etc) on the menu. By offering a choice, the number of special items needed is greatly reduced. When patients fill out the selective menu, diet personnel should check the menu for nutritional adequacy, particularly if the patient is to be in the hospital for an extended period of time. If the diet selected is nutritionally inadequate, this fact should be discussed with the patient.

4. Therapeutic or modified diet menu. An adjustment of the regular menu to meet a specific dietary requirement or adjust the caloric level. Preparation of this menu is just as important as preparation of the regular selective menu. Using as many regular menu items as possible, and simply modifying them in preparation method will reduce the number of special items which must be prepared for each meal. These menus should be prepared with variety, the same as the regular menu.

5. Cycle menu. Any of the menus above could be made into a cycle menu. The cycle menu is a series of daily regular or therapeutic menus designed for a specific period of time, such as 28 or 35 days (see Figure 1), or any other combination suitable to your operation.

28 DAY CYCLE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
1	2	3	4	5	6	7
8	9	10	etc.			

FIGURE 1

Any cycle less than 28 days is too short because repetition of daily menus would be obvious. At the end of the specified period of time, the cycle menu repeats itself and starts over again with the first day. Menu planning, when you are serving three meals per day, twenty-one meals per week, ninety-plus meals per month, becomes a complicated process because you want to avoid the repetition which makes meals so monotonous. Well planned cycle menus, especially when planned for Fall, Winter, Spring, and Summer cycles will allow for seasonal availability of foods and will help keep the menus interesting. The cycle menus may be either selective or nonselective, but both require careful planning. Once they are established, the menus are a saving in time and labor in planning menus, cooks' worksheets, and subsistence orders.

THE BASIC FACTORS OF MENU PLANNING

The hospital menu should include foods which provide all nutrients essential for good nutrition. To do this, the menu must be carefully planned. Once the regular menu is planned, it is used as the foundation for most other diets required for therapeutic purposes and is the basis for all meal planning in a hospital of any size or type.

The principles of menu planning for the hospital menu are the same as for any food service operation but may be more complex because foods are provided for so many types of diets. The fifteen factors basic to menu planning can be divided into two general areas - those relating to the clientele (in our case the hospital staff and patients) and those relating to food service management. The first includes the age, sex, occupation, and health of the group, as well as their nutritional needs and food preferences. The second deals with the type of food service provided, and includes the number to be served, the equipment available, the number and experience of food service personnel, the distribution of work, the food budget, and the availability and seasonability of foods.

The basic factors that must be considered in proper meal planning include:

1. Nutritional adequacy of the menu
2. Number to be served
3. Food habits of those to be served
4. Personnel available for preparation
5. Distribution of work
6. Budget for subsistence items
7. Availability of foods
8. Seasonability of foods
9. Plant resources
10. Type of service
11. Recipes to be used
12. Contrast of foods
13. Day of the week
14. Leftovers

15. Holidays

Let's consider each of these individually.

1. Nutritional Adequacy. The nutritional needs of patients and staff are important. Nutritional adequacy of the diet becomes even more important when the patient eats all of his meals at the hospital. The nutritional needs of the patients and staff can be met by including the recommended quantities of foods from each of the Basic Four Food Groups. The age, sex, and activity requirements of patients and hospital staff must be met. Regardless of age, foods must be offered which the individuals will accept. In planning menus for the aged, emphasis should be placed on the protective foods which contain the protein, vitamins, and minerals so essential to their well-being. Children are "picky" about the foods they eat but by using smaller sized utensils or simply cutting their foods into bite size pieces will give the necessary encouragement to eat most of their food.

2. Number to be served. The total number of persons to be fed at each meal will influence the method of preparation to be used. For example, if you are serving 50 persons, you might serve Stuffed Baked Potatoes; but if serving 750 persons, you would probably serve Baked Potatoes. Likewise, you might serve Baked Alaska to a small dinner party but it would be impossible to serve when trays are prepared in advance for service to patients.

3. Food habits of those to be served. When planning menus you must include foods which will be acceptable to various regional, ethnic, cultural and religious groups. Food habits arising from foreign backgrounds tend to stay as long as the cultural pattern of which they are a part is continued. Thus, such habits are found to be strongest in areas where ethnic or religious groups of a given background are concentrated.

The willingness of people to try new foods differs greatly. As mentioned earlier, ethnic, regional, cultural, and religious preferences of the group are all significant factors in menu planning. Hominy grits, black-eyed peas, mustard greens, and cornbread are favored and even essential menu items for institutions in the southern part of the United States. Boston baked beans and brown bread are New England favorites. Spicy foods such as chili, tacos, enchiladas, and barbecued meats are essential in the Southwest. Some of these foods find little popularity outside their regional areas.

The military population as a whole is a composite of many different regional, cultural, ethnic, and religious backgrounds. In the USAF the menu planner can strive to please each of these groups to some degree. The most important factor is to create a variety in the menus we write and to never force our own personal food habits on those we serve.

Food habits are instilled in us as children and play a large part in food likes and dislikes. To have foods served that are familiar at home can help increase the morale of the patients and employees. Children are especially prone to regressing in behavioral and eating habits when they become ill.

4. Personnel available for preparation. The number of food service personnel available to prepare the menu and the degree of their skill (or lack of it) are very important factors. In addition, the total manhours available and the number of personnel on duty at any one time must be considered. Fancy and complicated foods should not be added to the menu if personnel are not capable of or do not have the time for preparing them.

5. Distribution of work. The menu planner must consider any preparation which might be required for meals on the following days in the week. No daily menu is planned without considering the preparation to be done for the following day. Morale among the

cooks becomes extremely low when the menu planner has used many complicated or time-consuming menu items. For instance, suppose he has planned a Mexican dinner to be prepared for Tuesday's dinner menu and Shish Kabobs are on the menu for Wednesday's dinner. Shish Kabobs require much chopping of vegetables and meat and the meat cubes marinate overnight. The cooks would be working very hard to chop and assemble the many items for the Mexican dinner and still have the items for the Shish Kabobs ready to marinate by the end of their shift. It is important to distrubute work fairly and evenly among the various preparation areas of the kitchen.

6. Budget for subsistence items. The medical food service departments in Air Force medical facilities work on a tightly fixed income collected on a cost reimbursable basis. The ration credit earned is equal to the Hospital Daily Food Allowance (HDFA) multiplied by the number of rations served. Most Air Force facilities spend between 40-55% of their earned ration for meats though the exact percentage depends upon the particular facility. The cost of each meal is equal to the sum total of the cost of each menu item included. Adjustments to the menu must be made if the cost differs from the total earned rations. For example, by pre-costing the menus, the menu planner can substitute a less expensive meat if the cost of meat for the day is over the set percentage allowed.

7. Availability of foods. All food items must be available through the commissary so it would be useless to plan a menu around foods the commissary cannot purchase for you. Some items, such as sodium-restricted or fat-restricted salad dressings, sodium-restricted vegetables, and sugar-free fruits, may not be routinely handled by the commissary but can be arranged for by special request. When planning the menu, you must allow adequate time for delivery before putting the specially ordered item on the menu.

8. Seasonability of Food. Foods in season are more readily available and are usually available at a cheaper cost than foods out of season. With the improved methods of transportation and refrigeration, fresh fruits and vegetables are available almost all year round. Even with this increased technology the quality and quantity of foods available will be greatly improved when purchased in season. The use of cycle menus for Spring, Summer, Fall, and Winter allows for planning maximum use of seasonably available foods.

9. Plant Resources. Plant resources include equipment available, storage facilities, preparation, cooking and service units, and their arrangements within the facility. The work areas should be arranged so that food moves in one direction from receiving through storage, preparation, and serving. Many times, especially in smaller areas, the same ovens are used by the baker and cooks. This means you shouldn't have cakes, pies, roast meat, and baked potatoes on the same menu because of the physical impossibility of using one or two ovens to prepare all of these items.

Another consideration is the distance between the preparation area and the serving area. Foods requiring immediate service, such as souffles, Baked Alaska, etc., would not be served if the food must be prepared for transport to remote serving areas.

10. Type of service. The menu planned for family style (table) service would be different from that menu planned for cafeteria service. In the hospital, both cafeteri and centralized patient feeding systems must be planned for.

11. Recipes to be used. Many well planned menus have failed because sufficient thought was not given to selection of recipes. One rule to follow is never to include an item on the menu if you have no recipe for it. Cooks should be provided with standardized recipes so they have no question as to the yield or quality of the finished product.

12. Contrast of foods. Contrast does not mean just a contrast in colors. In addition to color, foods should be contrast by texture, flavor, temperature, shape, and preparation method to produce an interesting meal. When introducing these contrasts you will be adding a variety of foods to the menu and will keep the meals interesting

for the persons eating them. Contrast texture by using crisp and soft foods; shape, by not serving all round or all creamy foods; preparation, by a variety of fried, boiled, baked, and fresh foods.

13. Day of the week. Even though meat can now be eaten on Fridays by different religious groups, Friday still remains the traditional day of the week to serve fish or seafood. You should always be sure to have fish or seafood of some type available on Good Friday and Ash Wednesday. Also, you may want to serve a light meal at Saturday or Sunday suppers.

14. Leftovers. By careful planning, leftovers can be incorporated into the menu with a resulting lower food cost. For example, you might serve Turkey-Rice Soup the day after you serve roast turkey and use the bones to prepare the broth for the soup. There are times when fewer persons are served than planned for, or a menu item was not so popular as you had planned. When these instances occur, you find yourself with leftovers. Food left from one meal should be prepared in another form and used the following meal or following day, always within 24 hours. When you use leftovers, reduce the number of servings of the entrees on the menu which will be prepared. You should not plan to have leftovers but rather should adjust preparation to fit the number of persons you serve.

15. Holidays. Lists of holiday and seasonal suggestions should be available to the menu planner. Cycle menus should be planned with flexibility to allow for including special menus for such holidays as Christmas, Thanksgiving, and Easter. In addition, you may want to include special menu items for Valentine's Day, St. Patrick's Day, Arbor Day, Washington's, Lincoln's and Lee's birthdays, Mother's and Father's Day, July 4th, Columbus Day, United Nation's Day and Veteran's Day. Days of state, local, and regional significance can also be brought into the menu. Christmas colors of green and red may dominate the menu at Christmas time; red, white, and blue for July 4th; tiny flags may be a part of the decorations for Independence Day, Memorial Day, or most other patriotic holidays.

MENU FORMAT AND FORMS

Once the menu planner has considered the basic factors of menu planning and starts writing his menus, he should be consistent in the way he actually writes down the menu. In addition, he should use the proper forms. Failure to do either could result in confusion as to the items to be served on a particular day and/or too frequent repetition of menu items.

1. Format. When planning the menu, the planner should have a form large enough to write in the menu for three meals per day for at least one week. Seeing the entire week at once enables the planner to avoid repeating menu items. When writing the menu, put both entree selections together, both vegetables, etc. The menu planner should star the first choice item so there will be no doubt as to which is the first choice item for the selective menu.

For example: *Roast Beef w/Gravy
BLT Sandwich w/Chips

Always align the menu in the following order:
Appetizer, if applicable
Soup, if applicable
Entree
Starch (Potato or Potato Substitute)
Vegetable(s)
Hot Bread
Salad and Dressing
Dessert
Beverage

The recommended Meal Patterns for therapeutic diets listed in AFM 160-8 follow this same format. Being consistent with the format in AFM 160-8 and the one used in writing menus enable personnel using the menu and setting up the tray assembly line to quickly see what food items they need to prepare and where to place the items on the assembly line. An established routine for the tray line makes for a more efficient operation when assembling patients' trays and reduces the chances for errors.

2. Forms

a. AF Form 679, Cook's Worksheet. Once the menu is written, it must be transferred to a 679. One 679 is used for each meal. The cook's worksheet serves as a guide in planning, preparing, cooking, and serving meals. An example of a completed 679 is given in Figure 2 and instructions for completion of the 679 follow.

(1) The heading and menu items (Column A) are typed on the form. Sufficient copies are prepared for subsequent use on repeat cycles of the menu and for production areas and the storeroom as needed.

(2) Column B is completed manually by the shift leader prior to beginning production. This indicates to each individual which menu items he is responsible for preparing.

(3) Column C is completed manually by the diet therapy supervisor immediately prior to scheduled production dates. This allows for adjusting quantities prepared to the present requirements.

(4) Column D should have the number of the standardized recipe to be used or if there is no number attached, should have the source of the recipe. The recipes used are to be standardized for your specific operation.

(5) The information requested for Columns E, F, and G is available from the standardized recipe so it is not always necessary to complete these columns.

(6) Columns H and I are used in conjunction with AF Form 2571, Recipe Popularity Record, to develop historical data for planning purposes. If AF Form 2571 is completed by the shift leader immediately following the meal, Columns H and I need not be used.

(7) The area at the bottom of the worksheet entitled "Special Instructions to Cooks, etc." may be used for informing cooks of advance preparation or other special instructions. In a small medical food service facility, this area may be used for the Therapeutic Diet Worksheet. If the workload for therapeutic diets is heavy, seperate worksheets must be prepared. AFM 168-4, Chapter 11, clearly explains the use of this form.

SAMPLE

BREAKFAST 0600 HOURS

COOK'S WORKSHEET

☒ BREAKFAST ☐ DINNER ☐ SUPPER ☐ MIDNIGHT MEAL

DINING HALL NO. Hosp

INSTALLATION Medical Food Service, Falcon AFB, TX

NO TO PREP FOR 350

DAY OF WEEK Mon

DATE 11 Mar 74

MENU (Including leftovers from previous meals which are to be served) A	NAME OF INDIVIDUAL RESPONSIBLE FOR PREPARATION B	QUANTITY TO BE PREPARED C	RECIPE NO. ON MENU OR IN AFM 146-12 D	TIME		SIZE OF PORTION TO BE SERVED INDIVIDUAL G	LEFTOVERS		REMARKS (Use of leftovers, portions short, reason for excessive amount of leftovers) J
				PREP TO START E	COOKING TO START F		USE (within 24 hours) H	DISCARD I	
Chilled Orange Juice*	Anderson	3 1/2 gal	B-2	0500	-	4 oz	-		
** 175 Serv Chilled Fresh Grapes	Anderson	48 lb	-	0515	-	Small Bunch in Sauce Dish	5 lb	-	Use in Fruit Salad
175 Serv Oatmeal	Anderson	10 1/2 lb	E-2	0525	0535	3/4 Cup	-	-	
175 Serv Assorted Cold Cereal	Anderson	175 Boxes	-	0540	-	1 Box ea	-	-	
Fried on Req Eggs to Order	Johnson	60 Doz 2 Cases	F-10	0520	As Ordered	2 ea	-	-	
*** 175 Serv Crisp Bacon	Johnson	21 lb	L-3	0500	0535	251	3 lb	-	Use to Season Green Bean Dinner
**** 175 Serv Grilled Sausage Patty	Luna	44 lb	L-89	0500	0530	1 ea	-	-	
200 Serv Pancakes w/syrup	Luna	30 lb	D-25	0515	As ordered	2 ea		2 qt	
Toast	Luna	As Required	-	0540	-	2 ea	-	-	

SPECIAL INSTRUCTIONS TO COOKS AND ADDITIONAL REMARKS, IF ANY *(Continue on reverse, if necessary)*

* Place glasses in ice on serving line
** Wash and drain, place in sauce dish - place on ice
*** Drain well. Place in serving pan on hotline
**** Drain well. Place in serving pan on hotline

DINING HALL SUPERVISOR'S SIGNATURE R.J. Top-Kick, MSgt, USAF

FOOD SERVICE OFFICER'S SIGNATURE I. M. Great, Capt, USAF

AF FORM APR 71 679 PREVIOUS EDITION WILL BE USED.

FIGURE 2

☆ U.S. GOVERNMENT PRINTING OFFICE: 1972-490-874/54

b. Selective Menus. It has been previously stated that a selective menu is one that offers a choice between two or more food items in each classification on the menu. To provide a variety of food items for the patient, selective menus are written for the regular diets and also for therapeutic diets when the workload is sufficient to justify the additional work of planning and preparing the therapeutic selective menus.

Regardless of whether the menu is regular or therapeutic, once the patient has completed the selective menu, medical food service personnel must check it for nutritional adequacy. Then menu is then used to prepare and identify the tray. Two forms are used for regular selective menus, AF Forms 1737 (perforated in 1/3's) and 1739 (perforated in 1/6's). The regular cycle menus are overprinted onto the 1737s or 1739s, depending upon which tray service system is used.

The following color-coded forms are used for therapeutic menus:

(1) Yellow Forms:

AF Form 2493, Soft, Bland, Fiber/Restricted (Selective), perforated in 1/3's

AF Form 2494, Soft, Bland, Fiber/Restricted (Selective), perforated in 1/6's

AF Form 2502, Soft, Bland, Fiber/Restricted (Non-Selective), perforated in 1/6s

in 1/6s

AF Form 2483, Dental Soft - T & A Soft, perforated in 1/3's

AF Form 2484, Dental Soft - T & A Soft, perforated in 1/6's

AF Form 2491, Pediatrics, perforated in 1/3's

AF Form 2492, Pediatrics, perforated in 1/6's

AF Form 2481, Liquid, perforated in 1/3's

AF Form 2482, Liquid, perforated in 1/6's

AF Forms 1738 (perforated in 1/3's) and 1740 (perforated in 1/6's), "Therapeutic Menu," may be used for selective menus as are AF Forms 1737 and 1739. These forms may be used for menus which do not fit any of the patterns on forms 2478 through 2502. Test meals may be overprinted on this form.

(2) Green Forms:

AF Form 2499, Calorie Restricted, perforated in 1/3's

AF Form 2500, Calorie Restricted, perforated in 1/6's

AF Form 2479, Diabetic, perforated in 1/3's

AF Form 2480, Diabetic, perforated in 1/6's

(3) Pink Forms:

AF Form 2489, Bland, perforated in 1/3's

AF Form 2490, Bland, perforated in 1/6's

AF Form 2478, Sodium Restricted, perforated in 1/3's

AF Form 2485, Sodium Restricted, perforated in 1/6's

(4) Blue Forms:

AF Form 2497, Modified Fat, perforated in 1/3's

AF Form 2498, Modified Fat, perforated in 1/6's

AF Form 2487, Hyperlipoproteinemia Diet 2/Diet 4, perforated in 1/3's

AF Form 2488, Hyperlipoproteinemia Diet 2/Diet 4, perforated in 1/6's

EXTENDING THE REGULAR MENU FOR MODIFIED DIETS

When planning regular menus, you should keep in mind those items which could be used on a modified diet. Once the regular menu has been planned, the work of "extending" the menu for modified diets begins.

Modified diet menus can be cycled just as the regular menu can be cycled. You will find AFM 160-18, Therapeutic Diet Recipes, helpful. There are also many other sources available for modified diet recipes. AFM 160-8, Applied Clinical Nutrition, will be of great benefit when looking for foods that are or are not allowed on a particular diet.

Cycle menus for modified diets can be either selective or nonselective. The trend is to offer a selective modified diet menu if at all possible, but this may be difficult to do in the smaller hospitals. In planning food items to use on cycle modified menus, it is imperative that we keep the workload to a minimum. One means of doing this is to use as many items as possible from the regular menu on the modified diets by "extending" the regular menu items to include a preparation technique suitable to the modified diet rather than planning a completely new item. In extending a modified diet menu from the regular menu, the use of an arrow across the menu saves time in repetitiously writing the same food item over and over again, and it presents a neater appearance on the menu form. "Extended" menus have been explained in detail in your SW on Writing Therapeutic Diets.

Below is an example of a poorly planned modified diet menu. Identify items that are incorrectly extended.

REGULAR DIET	SOFT & BLAND DIET	CONTROLLED FAT DIET	1,000 CALORIE DIET
Stewed Prunes —	—	—	— (3)
Oatmeal —	→	FF Oatmeal	
Cheese Omelet —	—	— (1) —	— (1)
Creamed Beef →			
Cream of Tomato —	→	FF Tomato →	FF Tomato
Arroz con Pollo —	→	FF Lobster Tail →	FF Lobster Tail
French Fried Potato —	→	FF Baked Potato —	→
Green Beans Italiano	Buttered Carrots	FF Carrots —	→
Cottage Cheese		Tossed Green Salad	
Veg Mold —	→	Zero Dressing —	→
Egg Nog Pie —	→	Canned Apricots —	→
Chicken Noodle Soup —	→	Fruit Juice →	FF Jellied Consomme
Wienersnitzel →	Roast Beef →	FF Roast Beef —	→
Whipped Potatoes —	→	FF Boiled Potatoes —	→
Succotash —	→	FF Tomatoes —	→
Fruit Salad —	→	Salad Tomato →	Lettuce with Zero Dressing
Chilled Oranges —	→	Calorie Restricted Fruit Cocktail —	→

FIGURE 3 - INCORRECTLY EXTENDED MODIFIED DIET MENU

Figure 4, page 12, is an example of a correctly extended menu.

Turn to page 17, Project I, for a regular menu which you will extend for soft,and bland, calorie/restricted diets under the guidance of your instructor. If no item from the regular menu can be used, check AFM 160-8 for foods allowed on the diet and substitute an appropriate menu item.

MENU COSTING

Menu costing is an important management tool to use in keeping the cost of food purchased within the value of the ration earnings. Fluctuations in food costs, which are currently rising rapidly, are often the cause of financial disaster or possibly of nutritional disaster. Adding an expensive meat in place of an inexpensive meat or increasing the size of the serving will cause a rise in food costs. Reducing serving sizes drastically or using less expensive and less complete sources of protein, such as dried beans and peas, or nuts in place of meat may reduce food costs but will also reduce the nutritional adequacy of the diet.

Through menu costing, an individual can obtain the cost of preparing the meal. This makes everyone in the food service department cost-conscious and enables the supervisor to do a better job with ration funds available. The figures obtained aid in planning the budget, especially in showing price fluctuations which may necessitate an increase in the budget. Knowing the cost of the menu items aids storeroom personnel in keeping a low stock of expensive items and minimizes the danger of over or under buying.

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	MONDAY *REGULAR	SOFT BLAND	FAT RESTRICTED	CALORIE RESTRICTED	SODIUM RESTRICTED	FULL LIQUID
B	*Apple Juice	→	→	1/3 Cup →	→	8 oz →
	Fresh Orange					
	Hot Farina	→	FR →		Na/R Farina	Reg Farina
	Cold Cereal					
	*Eggs to Order	No Fried →	Scr →	FR →	Na/R →	Milk - 8 oz
	*Grilled Pork Sausage	Crisp Bacon				
	Creamed Beef on Tst					
	*Hash Brown Potatoes					
	*Toast	White →	Dry →	Dry →	Na/R →	Coffee or Tea
	*Butter	→	1 tsp →	1 tsp →	Na/R →	→
	*Jelly	→	→		Na/R Jelly	Hot Cocoa - 8 oz
D	Pea Soup c̄ Ham	Crm of Potato Soup	Beef Bouillon →	→		Str Crm Pot Soup
	*Cheese Burger	→	Lean Beef Pattie	Lean →	Na/R →	
	Hamburger					Jello
	*French Fries	BU Potatoes →	Boiled FR Potato →	→	Na/R →	Eggnog Shake-8 oz
	*Mexicorn	BU, Chopped Spinach →	FR →	FR →	Na/R Corn	Milk - 8 oz
	*Sl Tom-Pickle-Onion	Sl Tom-No Skin/Seed	Sl Tom	Sl Tom-Pick-Onion	Sl Tom & Onion	Fruit Juice -4 oz
	*Catsup Mayonnaise	Mayonnaise	Catsup & Mustard	Catsup & Mustard		Coffee or Tea
	*Mustard					
	Tossed Salad					
	Asst Jello					
	*Hamburger Bun	→	→	If allowed →	Na/R Dinner Rolls	
	*Strawberry Short Cake	Plain Shortcake	Frzn Strawberries	Fresh Watermelon →	→	
S	Beef Noodle Soup	Crm of Asp Soup				Chix Bouillon
	*Fried Chicken	Baked Chix →	FR No Skin →	FR No Skin →	Na/R →	Ice Cream (Chocolate)
	*Chix Gravy	Gravy for Softs				Vanilla Pudding
	*Mashed Potatoes	BU →	FR →	FR →	Na/R →	Milk - 8 oz
	*Buttered Peas	BU →	FR →	FR →	Na/R →	Frt Juice - 4 oz
	Peach & Cottage Cheese	→				
	Tossed Salad		Lettuce Wedge w/FR Drsg	Toss-Cal/R Drs	Tossed w/Vinegar	
	Asst Jello					
	*Dinner Rolls	→	→	If allowed →	Na/R Bread	
	*Coconut Creme Pie	Vanilla Pudding	Cnd Peaches	D/P Peaches	Cnd Peaches	

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The actual system used for menu costing will be tailored to fit the needs of the operation. The two methods of costing menus most frequently used are the recipe method and the percentage method. You will learn more about these individual methods as you study your CDC's for upgrade training. You should also be aware that portion size and raw food cost are the obvious factors that affect food cost. Other factors, such as errors in delivery, spoilage in storage, waste during preparation, carelessness in portioning, excessive leftovers, and discrepancies in cash are to be carefully watched so they do not increase the cost of your menus.

MENU SUBSTITUTIONS

Even though careful planning has gone into preparing a cycle menu and the commissary has been notified that you need the food, menus may still require changes. Some of the causes for changing the menu or substituting another item are:

a. Nonavailability of food items. The commissary may be unable to purchase the food due to shippers strikes, or low, extremely low supplies of food items. Also, since the menus are planned several months in advance, some fresh foods may be out of season by the time they are needed.

b. Cost of foods. Over a period of months, food prices change. Perhaps the cost of the food item has become so high that it must be removed from the menu until it is once again available at a reasonable price. It is also possible that the patient load and number of persons eating in the dining hall drops off, greatly reducing ration earnings. This would necessitate the removal of expensive items from the menu until such time as the number of rations served increases.

c. Utilization of excess stores. In spite of careful supervision, certain items may become overstocked in the storeroom. This may mean placing the item on the menu several times in rapid succession to prevent spoilage or simply to use up large quantities of the food item. Fresh fruit and vegetables are good examples of foods which may not move as fast as planned and which must be used immediately to prevent spoilage.

d. Holiday or special occasions. Holidays are planned into the menu so really cannot be called a substitution. Special days other than Thanksgiving and Christmas may require a substitution of one or two menu items. For instance, on Washington's Birthday you may add cherry pie to the menu or on Lincoln's Birthday, a Lincoln Log dessert (chocolate jelly roll). These items would be served only on the specific days for which they were planned, not on every cycle of the menu.

When making the menu item substitutions, it is most important to change all copies of the menu production schedule and notify all personnel of change to be made. The supervisor would be responsible for making the changes. All posted copies of the menu, all selective menus, and the menu board must be amended to read correctly. This must be accomplished before the menu is posted or the selective menus are distributed to patients. When notifying personnel, notify key personnel such as shift leaders, bakers, and storeroom supervisor, but also make sure that the cooks and persons setting up the patient tray line are aware of the changes. Remember, it is easier to make the changes before you have to explain to patients why you cannot serve the item they ordered on their selective menu.

MENU AS BASIS FOR ORDERING SUBSISTENCE

Naturally, before you know what foods to order you must have a menu to order from. Also, you must have an idea of how many people you will be serving, both on the wards and in the dining room. The NCOIC usually estimates how many persons will be served and how much of each menu item is to be prepared. When you use a cycle menu, the estimate can be based on past records when the cycle menu was served. Once storeroom personnel know the estimated number of portions required, they can use the standardized recipe to calculate the quantity of each item to order.

The standardized recipe states the standard portion size (the standard size serving which has been established for each item to be served) and the total yield of the recipe. When personnel use the correct portion and standardized recipes, storeroom personnel can calculate the quantity of subsistence required to prepare the menu item. This control is essential to keep food production costs within the ration earnings.

The individual responsible for preparing food requisitions will find the weight of fresh fruits and vegetables in recipes followed by E.P. and A.P. These terms indicate whether the amount of the ingredient is weighed "as Purchased" (A.P.) or by the "Edible Portion" (E.P.). These terms and the procedures for calculating them will be discussed in the lesson on standardized recipes.

QUESTIONS

1. Define a menu:

2. List twelve factors to consider when planning menus.

3. Briefly explain how personnel available will influence menu planning.

4. Define "Selective Menu."

5. Why are selective menus preferred by most patients?

6. Are selective menus nutritionally adequate? Why?

7. Define "Cycle Menu."

8. Why are cycle menus used?

9. What format should be followed when writing the menu and why whould the meru writer follow the format?

10. Explain the use of each the following AF Forms:

a. AF Forms 1737 and 1739

b. AF Forms 1738 and 1740

11. What tool is used to convey the Diet Supervisor's instructions to the cooks?

____

12. Who is responsible for preparing the cook's worksheet?

____

13. List the information required in columns A, B, C, and D of AF Form 679, Cook's worksheet.

14. Who assigns individual responsibilities on the 679?

____

15. Briefly explain how to determine the time to start cooking a menu item?

____

16. Why must the signature block of the AF Form 679 be signed?

____

17. List and briefly explain four reasons for making menu item substitutions.

18. List three reasons for costing a menu.

a.

b.

c.

PROJECT I

Extend the Regular Menu provided on page 18 for the following diets:

Soft/Bland
Fat Restricted
Calorie Restricted/Diabetic
Sodium Restricted
Full Liquid

1. Follow any special instructions given to you by your instructor very carefully.

2. As you write each modified menu, use the Recommended Meal Pattern for that particular diet in AFM 160-8.

3. Be sure all categories of food used in the Recommended Meal Pattern is used in your "extended" menu. Indicate quantities (such as 1/4 cup, 1 tbsp) when these are particularly important.

4. If foods have special preparation (such as Fat Restricted or Sodium Restricted) which is required, indicate this where necessary.

5. To fit the Recommended Meal Pattern, you will need to use the lists of foods allowed and to be avoided for each particular diet.

6. Whenever a food item from the Regular Menu can be used on any modified diet, be sure that you use it. Your menu will be marked WRONG if you fail to use an item that can be used and substitute something additional for it.

7. "Extend" the menu by drawing a line from the food item listed in the Regular Menu across the page as long as that food item can be used. End the line with an arrow, at the point on the extended menu where that particular food item can no longer be used.

8. If an item from the Regular Menu cannot be used on any diet, write in a food item that is allowed.

9. Be sure that your completed menu for each diet contains all the same groupings of food as is indicated in the Recommended Meal Pattern for that particular diet. Be sure that all foods you have used are from the list of foods allowed.

REGULAR	SOFT/BLAND	FAT RESTRICTED	CALORIE RESTRICTED DIABETIC	SODIUM RESTRICTED	FULL LIQUID
BREAKFAST *Orange Juice Fresh Grapes Oatmeal Cold Cereal *Eggs to Order *Crisp Bacon Grilled Sausage Patty Pancakes w/Syrup *Toast *Butter *Jelly					
DINNER Chicken Noodle Soup *Grilled Pork Chops Meat Loaf w/Gravy *Scalloped Potatoes Buttered Boiled Potatoes *Beets in Orange Sauce Buttered Green Beans *Coleslaw Jello & Fruit Cocktail Salad *Canned Applesauce Butter Cookies					
SUPPER Cream of Tomato Soup *Roast Beef w/Gravy Franks on Bun *Baked Potato w/Sour Cream *Buttered Green Peas Baked Beans *Dinner Rolls *Celery & Carrot Sticks Potato Salad *Fresh Peach Yellow Cake w/Icing					

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STUDY GUIDE AND WORKBOOK
3ABR62231-2-III-1b

Technical Training

Diet Therapy Specialist

MENU PRODUCTION
(STANDARDIZED RECIPES)

September 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
Department of Biomedical Sciences
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

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Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-III-1b
September 1975

MENU PRODUCTION
(STANDARDIZED RECIPES)

OBJECTIVES

This SW is designed to assist you in the knowledge and use of standardized recipes. After this unit of instruction, you will be able to accomplish the following objectives:

1. Define a Standardized Recipe.

2. Identify the format and the information included on a standardized recipe card.

3. Explain the relationship of Standardized Recipes to:

    a. Menu Planning

    b. Estimating and forecasting subsistence

    c. Menu Production

    d. Portion control

4. Discuss the Pros and Cons of using Standardized Recipes.

5. Explain the procedures for increasing and decreasing standardized recipes.

6. Calculate E.P. and A.P. Weights as used on recipe cards.

7. Discuss the method used in testing regular and therapeutic recipes for standardization in Medical Food Service.

8. Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and the total yield of the recipe. Twenty of the twenty four calculations must be correct.

This supersedes SW 3ABR62231-2-III-1b, May 1975

INTRODUCTION

As a Diet Therapy Specialist, you will be working with standardized recipes daily as you prepare both regular and therapeutic menu items. Many of these recipes will be from the Air Force recipe file for regular food items, AFM 146-12 or from the Therapeutic Recipe File, AFM 160-18. Recipes from both of these files have already been standardized for use in military food service facilities. However, from time to time recipes will be used in your medical food service department which do not come from this source. These recipes may be obtained from magazines, newspapers, journals, textbooks or any number of sources. Before they can be successfully used in your food service department, they must be standardized to be sure they meet the high standards of quality and quantity expected. Producing the correct quantity and consistent quality of food is very important in any food service operation. Standardized recipes are the tools which will help insure these goals. You will almost certainly be involved in assisting your supervisor in standardizing recipes for your particular food service operation. This study guide and workbook is designed to help you in your study of standardizing recipes.

INFORMATION

DEFINITION

Just what is a standardized recipe? We can define a standardized recipe as:

A recipe in which the amounts and proportions of the ingredients and the methods of procedure will consistently produce a high quality product.

The ingredients in a standardized recipe are carefully balanced for the number of portions the recipe is to yield. Air Force recipes were designed to standardize the foods served in Air Force dining halls. Each recipe was carefully tested a number of times and found consistently satisfactory in quality and quantity before being standardized for the recipe system. They were also checked for simplicity and ease of understanding, and were tailored to fit the specific needs of a particular operation (the military dining hall). So - we could also describe standardized recipes as being tailored to fit the specific needs of a particular operation for:

1 - quality

2 - portion size

3 - total yield

4 - raw food cost

FORMAT AND INFORMATION INCLUDED ON A STANDARDIZED RECIPE CARD

There are a number of recipe formats that you can adapt when a standardized recipe program is established. The format used in the file of AF Recipes (AFM 146-12) is one of the better formats; this same format can be used for other recipes that you standardize. A sample of this format is illustrated on page 4. Some of the more important information it provides is listed:

A. Heading

B. Index designation (or File Code)

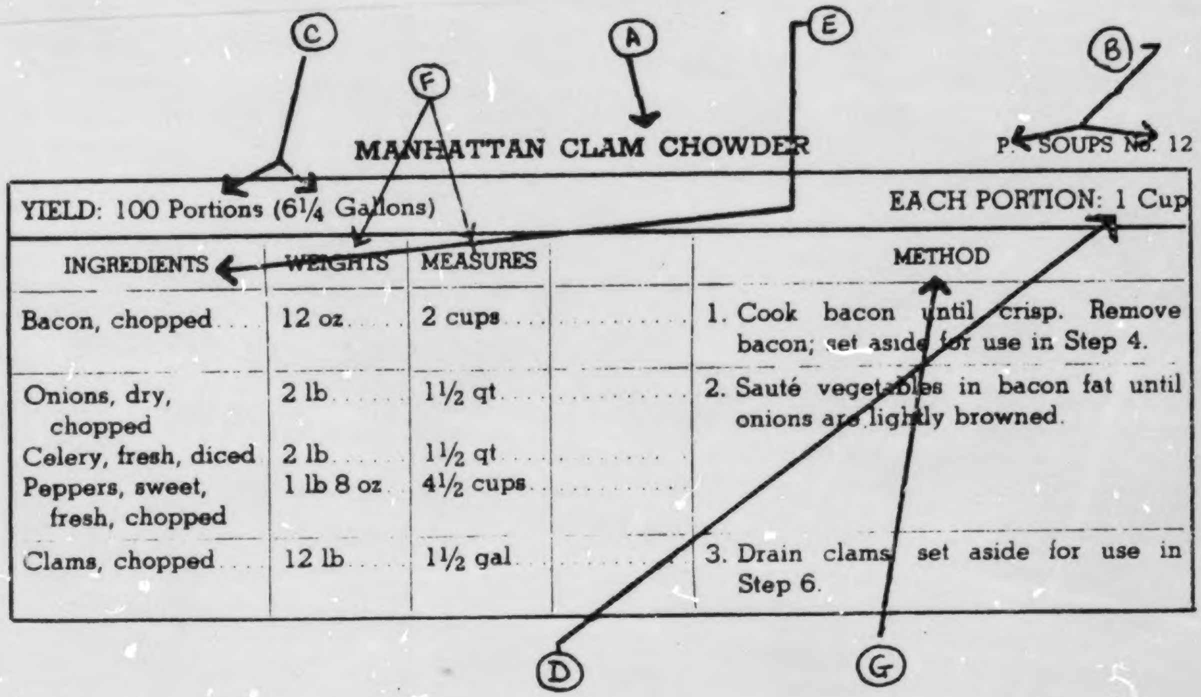
C. Total yield and/or number of portions

D. Size of portion

E. List of ingredients

F. Weights and/or measures of ingredients needed

G. Brief but clear directions



MANHATTAN CLAM CHOWDER P. SOUPS No. 12

YIELD: 100 Portions (6¼ Gallons)				EACH PORTION: 1 Cup
INGREDIENTS	WEIGHTS	MEASURES		METHOD
Bacon, chopped	12 oz	2 cups		1. Cook bacon until crisp. Remove bacon; set aside for use in Step 4.
Onions, dry, chopped Celery, fresh, diced Peppers, sweet, fresh, chopped	2 lb 2 lb 1 lb 8 oz	1½ qt 1½ qt 4½ cups		2. Sauté vegetables in bacon fat until onions are lightly browned.
Clams, chopped	12 lb	1½ gal		3. Drain clams; set aside for use in Step 6.

Recipe Format

Too often, very little thought is given to the format and layout for recipes. A format that is easy to read while standing and working is essential. Take a look at the lighting in the kitchen. Remember that many cooks may be older persons with failing eyesight or who wear glasses. Remember that a cook or baker is busy moving about while weighing, measuring, or mixing ingredients. A small, crowded recipe card that is readable at a desk may be impossible to read in the kitchen work area. Don't choose a 3 X 5 inch card simply because it fits in a small, neat desk file box. Remember that this size card cannot adequately give the important information needed in the format suggestion which follows: Visualize the use of recipes "at work" in the kitchen. Recipes should be readable at a distance of 18 to 20 inches by a person in a standing position. The ideal situation is to have recipe cards held in a rack or holder of some kind with a slight backward tilt, as shown in figure 1.

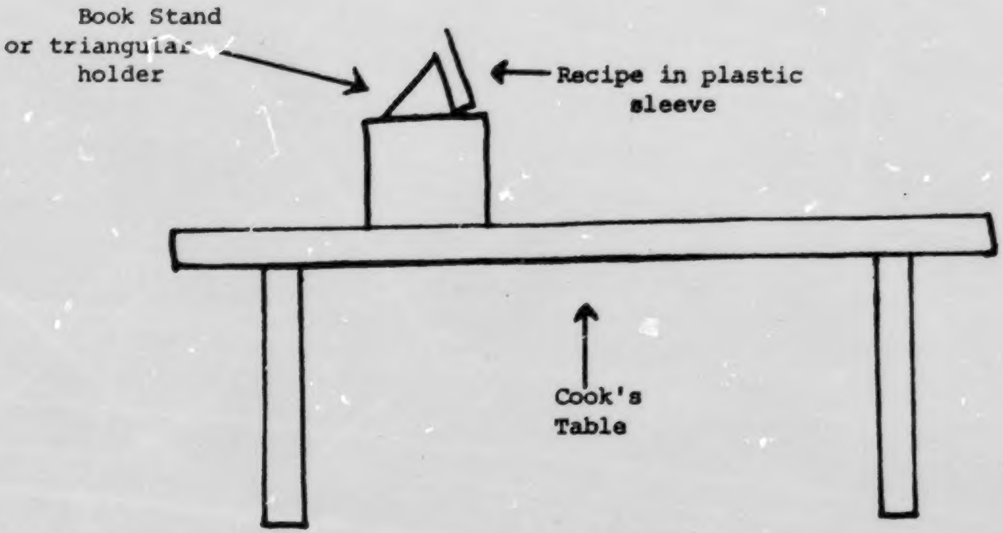

Book Stand
or triangular
holder
Recipe in plastic
sleeve
Cook's
Table

Figure 1

THE RELATIONSHIP OF STANDARDIZED RECIPES TO:

1. Menu Planning. Standardized recipes add variety in menu planning. Planning menus for a definite cycle of time has been found to be an efficient means of obtaining meals of maximum interest and economy in food service facilities. Many well planned menus have failed because sufficient thought was not given to the selection of recipes. The supervisor is assured that he will receive the same quantity and quality of food each and every time it is served.

2. Estimating and Forecasting Subsistence Requirements. Standardized recipes should be used as a basis for estimating quantities of ingredients to be used for each product. The weight and measures columns on the recipes play an important role here by showing exactly what is needed to produce the quality product. By calculating the total ingredients needed in the recipes for a certain period, you can then safely estimate the total subsistence requirements for that period.

3. Menu Production. All activities in medical food service are centered around one important factor - time. Getting a quality food product out at the proper time for serving takes time - but how much? This is where standardized recipes come in. Each recipe has a preparation time and cooking time listed, and by following these set times, you will be assured of producing the product desired in the specified time period. Sometimes a cup of coffee prepared just right has made a food service successful, just as tasteless meat and overdone vegetables have wrecked others. Standardized recipes take the guess work out of preparing a meal. It contains such information as preparation time and cooking time.

4. Portion Control. The serving of standardized portions is a must in controlling costs within any food service. Each recipe specifies how much of the total product should be served to each customer. In civilian restaurants servings too large lose money and servings too small lose customers and in the armed forces these type servings cause complaints and create problems. Standardized recipes list individual portions as well as total portions based on 100 portions. Following these portion sizes will assure you of having the total yield of the recipe that was estimated. Each customer will have the same serving, and you won't run short of the item beforehand.

PROS AND CONS OF USING STANDARDIZED RECIPES

Not all cooks or supervisors agree that food preparation can or should be controlled. Some argue they "don't have the time" to establish such a standardization program. Some willingly accept the comments of the cook who claims that standardized recipes restrict their creative ability. Others are convinced that it pays off in consistently high quality food, customer satisfaction and predictable food cost. Here is a detailed listing of the pros and cons for using standardized recipes:

PRO

1. Can predict quality of finished product
2. Can predict how much of finished product will be produced
3. Can predict how much it will cost
4. Makes management less dependent on the whims of and changes in personnel
5. Almost anyone of average ability can be taught to produce excellent food with the necessary information
6. No longer have to plan specific menu items around schedules of certain workers
7. Simplifies purchasing. You know what and how much you need
8. Minimizes waste
9. Utilizes storage space to best advantage

CON

1. Cooking is an art, not a science. (Would you want commercial food processors to use the hit-or-miss preparation methods some food service supervisors use? By insisting that cooking is exclusively an art, we ignore the fantastic progress made in the food industry in the last 50 years. Standardizing a product will not make it better or worse than it was before. Would you rather be surprised occasionally by a really good chocolate cake, or would you rather have that really good cake each and every time it appears on your menus?)
2. Standardization takes away the opportunity for individuality and imagination on the part of the cook. (There is just so much "individuality" that can go into a roast chicken or tasty bread dressing. If an ounce of sage produces a tasty bread dressing today, will two ounces - or 1/4 ounce - make it better next week? Or is someone just a little bit too lazy to weigh or measure

10. Keeps inventories adequate but not excessive.

11. Reduces time supervisors spend in repetitive but necessary activities. (When quality and quantity are assured, you can avoid "guesstimates" which often result in poor products, employee dissatisfaction and wasted time and material.)

12. Using standardized recipes for basic menu items leaves more time to devote to merchandizing or service to other supervisory responsibilities.

13. Employees feel secure. They know what to do, how to do it and what kind of product they will obtain. The responsibility of the cook becomes careful preparation of the product instead of deciding how much of an item to prepare and how to "create" it.

14. You know where your operation is going - not just where it has been. Losses from overproduction can be eliminated and losses from product failure can be minimized.

15. Frees management time for working with people rather than things.

carefully the ingredients for a dish that is known to be reliable and tasty. The words "imagination" and "guessing" do not have the same meaning in our dictionaries.)

3. Standardization makes all foods taste the same. (Standardization assures that the finished product will be the same each time it is made. There is more danger of foods developing a "sameness" when the cook is allowed to pursue his "art" with a free hand. Often the soup, meatloaf, stew, pot roast and gravies all have the same flavor in such a case where the cook has a heavy hand with oregano or Worchestershire sauce. On the other hand, when your customers find a dish they particularly like in your dining hall, they expect it to taste the same the next time it is served. When the cook flavors with a "little" dash of this and a big dash of that, the dish never tastes the same twice.)

4. A standardization program requires too much work. (It does take a little work, but little more than in hit-and-miss productions. Once your recipes are standardized, they take a lot LESS work on both your part and the part of your cooks. Remember that once you standardize a set of recipes, they will be adaptable in most Air Force hospitals, since the type of food, our equipment and our clientele remain pretty much the same even though we may change job locations. It is LESS work to proceed knowing what you are doing than to work without knowing.)

5. Good cooks have their recipes "in their heads" or know how to cook without a recipe. (Many do, but are they appropriate for your operation? Will the finished product meet your high standards or the expected standards of your clientele? The quality of food served in your dining hall is your responsibility - not only your supervisor's. What happens when a cook with all his recipes "in his head" has a day off or takes leave? Many cooks have a fine sense of flavor and appearance but are terribly weak in arithmetic. Food quality may be excellent, but why do you find you usually have too much or too little? They may be able to double a recipe or cut it in half, but any other adjustment is a "guesstimate." Adjusting recipe yield is the initial responsibility of management, but anyone involved with food preparation must understand how and why it is done.)

PROCEDURES FOR INCREASING OR DECREASING STANDARDIZED RECIPES

It will often be necessary to adapt a recipe to meet the needs of a particular food service.

All recipes in AFM 146-12, Recipes, are designed to produce 100 portions. Since few dining facilities serve exactly 100 portions of any given recipe at every meal, it is often necessary to increase or decrease a recipe. Or you may want to increase or decrease the portion of a recipe.

Recipes can be adjusted by several different means:

1. To adjust recipe yield (such as from 100 to 145 or from 100 to 40)

2. To use a specific amount of ingredients already available (such as 15 pounds of left over roast beef)

3. To produce a specific number of small portions.

An example of each of these adjustments follows:

1. To adjust recipe yield: Assume your recipe is for 100 servings, but you need 348 servings:

First: Obtain a working factor by dividing the number of servings needed by the portions the recipe is to yield. If the recipe yield is 100, divide by 100. If the recipe yield is 48, divide by 48.

Example: 348 (servings needed) ÷ 100 = 3.48 working factor

Second: Multiply the quantity of each recipe ingredient by the working factor.

Example: 1.25 lb (as given in the recipe) X 3.48 working factor = 4.35 lb (quantity needed for that ingredient).

Third: Convert the fraction of lb to ounces by multiplying the decimal (.35) X 16 (ounces per lb) = 5.60 ounces.

Fourth: Round off this decimal (.60) using the chart shown immediately below.

.01 to .12 = 0 ounce
.13 to .37 = 1/4 ounce
.38 to .67 = 1/2 ounce
.68 to .87 = 3/4 ounce
.88 to .99 = 1 ounce

Example: .60 oz would equal 1/2 oz. 5.60 would then read: 5 1/2 ounces (needed for that ingredient).

2. To use a specific amount of ingredients already available: Assume you have 15# of roast beef to use up.

First: Obtain a working factor by dividing the pounds you have to use by the pounds required in the recipe you plan to use. If the recipe yields 100 portions, divide by 100.

Example: 15 lb (amount available) ÷ 25 lb (amount per 100 portions) = .60 working factor.

Second: Multiply the quantity of each ingredient in the recipe by the working factor.

3. To produce a specific number of smaller portions: Assume you want to decrease a 4 oz portion to a 3 oz portion:

First: Divide the desired portion size by the standard portion of the recipe.

Example: 3 oz (desired size) ÷ 4 oz (recipe portion size) = .75

Second: Multiply the servings needed by the answer from step 1 above.

Third: Divide the answer from step 2 above by the yield portion of the original recipe to get the working factor.

Fourth: Multiply the quantity of each ingredient in the recipe by the working factor.

Ounce and Pound Charts:

When increasing or decreasing a recipe, the division or multiplication of pounds and ounces is simplified when decimals are used.

To convert the quantities of ounces to decimals use the following table:

Wt in Ounces	Decimal of a Pound	Wt in Ounces	Decimal of a Pound	Wt in Ounces	Decimal of a Pound	Wt in Ounces	Decimal of a Pound
1	.06	5	.31	9	.56	13	.81
2	.13	6	.38	10	.63	14	.88
3	.19	7	.44	11	.69	15	.94
4 (1/4 lb)	.25	8 (1/2 lb)	.50	12 (3/4 lb)	.75	16 (1 lb)	1.00

FIGURE 2

FOR EXAMPLE: 1 lb 3 oz is converted to 1.19#
1 lb 15 oz is converted to 1.94#

Standardized recipes for 50 or 100 portions are now available from many sources, including cookbooks and materials published and distributed from experimental kitchens of commercial companies.

The following two charts, the OUNCE CHART and the POUND CHART have been designed to permit easy adjustments of basic recipes for the number of portions actually needed.

EXAMPLE: A basic 100-portion recipe calls for 7 ounces of a particular ingredient. When adjusting to 25 portions, find the column headed "100 portions" and move down to the space marked "7 oz." Then move across this space horizontally to the left, to the column headed "25 portions." Follow the dotted line on the Ounce Chart to see how this is read. The figure 1 3/4 ounces then appears as the number of ounces of the ingredient needed.

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OUNCE CHART

25 Portions	50 Portions	75 Portions	(100) Portions	200 Portions	300 Portions	400 Portions	500 Portions
-	-	1/8 oz	1/8 oz	1/4 oz	3/8 oz	1/2 oz	5/8 oz
-	-	1/6 oz	1/6 oz	1/3 oz	1/2 oz	2/3 oz	5/6 oz
-	-	1/5 oz	1/5 oz	3/8 oz	3/5 oz	4/5 oz	1 oz
-	-	1/4 oz	1/4 oz	1/2 oz	3/4 oz	1 oz	1-1/4 oz
-	-	1/3 oz	1/8 oz	2/3 oz	1 oz	1-1/3 oz	1-2/3 oz
-	1/4 oz	3/8 oz	1/2 oz	1 oz	1-1/2 oz	2 oz	2-1/2 oz
-	1/3 oz	1/2 oz	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	3-1/3 oz
-	3/8 oz	5/8 oz	3/4 oz	1-1/2 oz	2-1/4 oz	3 oz	3-3/4 oz
1/4 oz	1/2 oz	3/4 oz	1 oz	2 oz	3 oz	4 oz	5 oz
1/2 oz	1 oz	1-1/2 oz	2 oz	4 oz	6 oz	8 oz	10 oz
3/4 oz	1-1/2 oz	2-1/4 oz	3 oz	6 oz	9 oz	12 oz	15 oz
1 oz	2 oz	3 oz	4 oz	8 oz	12 oz	1#	1# 4 oz
1-1/4 oz	2-1/2 oz	3-3/4 oz	5 oz	10 oz	15 oz	1# 4 oz	1# 9 oz
1-1/2 oz	3 oz	4-1/2 oz	6 oz	12 oz	1# 2 oz	1# 8 oz	1# 14 oz
(1-3/4 oz)	3-1/2 oz	5-1/4 oz	(7 oz)	14 oz	1# 5 oz	1#12 oz	2# 3 oz
2 oz	4 oz	6 oz	8 oz	1#	1# 8 oz	2#	2# 8 oz
2-1/4 oz	4-1/2 oz	6-3/4 oz	9 oz	1# 2 oz	1# 11 oz	2# 4 oz	2# 13 oz
2-1/2 oz	5 oz	7-1/2 oz	10 oz	1# 4 oz	1# 14 oz	2# 8 oz	3# 2 oz
2-3/4 oz	5-1/2 oz	8-1/4 oz	11 oz	1# 6 oz	2# 1 oz	2#12 oz	3# 7 oz
3 oz	6 oz	9 oz	12 oz	1# 8 oz	2# 4 oz	3#	3# 12 oz
3-1/4 oz	6-1/2 oz	9-3/4 oz	13 oz	1# 10 oz	2# 7 oz	3# 4 oz	4# 1 oz
3-1/2 oz	7 oz	10-1/2 oz	14 oz	1# 12 oz	2# 10 oz	3# 8 oz	4# 6 oz
3-3/4 oz	7-1/2 oz	11-1/4 oz	15 oz	1# 14 oz	2# 13 oz	3#12 oz	4# 11 oz

POUND CHART

25 Portions	50 Portions	75 Portions	100 Portions	200 Portions	300 Portions	400 Portions	500 Portions
4 oz	8 oz	12 oz	1#	2#	3#	4#	5#
5 oz	10 oz	15 oz	1# 4 oz	2# 8 oz	3# 12 oz	5#	6# 4 oz
6 oz	12 oz	1# 2 oz	1# 8 oz	3#	4# 8 oz	6#	7# 8 oz
7 oz	14 oz	1# 5 oz	1# 12 oz	3# 8 oz	5# 4 oz	7#	8# 12 oz
8 oz	1#	1# 8 oz	2#	4#	6#	8#	10#
9 oz	1# 2 oz	1# 11 oz	2# 4 oz	4# 8 oz	6# 12 oz	9#	11# 4 oz
10 oz	1# 4 oz	1# 14 oz	2# 8 oz	5#	7# 8 oz	10#	12# 8 oz
11 oz	1# 6 oz	2# 1 oz	2# 12 oz	5# 8 oz	8# 4 oz	11#	13# 12 oz
12 oz	1# 8 oz	2# 4 oz	3#	6#	9#	12#	15#
13 oz	1# 10 oz	2# 7 oz	3# 4 oz	6# 8 oz	9# 12 oz	13#	16# 4 oz
14 oz	1# 12 oz	2# 10 oz	3# 8 oz	7#	10# 8 oz	14#	17# 8 oz
15 oz	1# 14 oz	2# 13 oz	3# 12 oz	7# 8 oz	11# 4 oz	15#	18# 12 oz
1#	2#	3#	4#	8#	12#	16#	20#
1# 1 oz	2# 2 oz	3# 3 oz	4# 4 oz	8# 8 oz	12# 12 oz	17#	21# 4 oz
1# 2 oz	2# 4 oz	3# 6 oz	4# 8 oz	9#	13# 8 oz	18#	22# 8 oz
1# 3 oz	2# 6 oz	3# 9 oz	4# 12 oz	9# 8 oz	14# 4 oz	19#	23# 12 oz
1# 4 oz	2# 8 oz	3# 12 oz	5#	10#	15#	20#	25#
1# 5 oz	2# 10 oz	3# 15 oz	5# 4 oz	10# 8 oz	15# 12 oz	21#	26# 4 oz
1# 6 oz	2# 12 oz	4# 2 oz	5# 8 oz	11#	16# 8 oz	22#	27# 8 oz
1# 7 oz	2# 14 oz	4# 5 oz	5# 12 oz	11# 8 oz	17# 4 oz	23#	28# 12 oz
1# 8 oz	3#	4# 8 oz	6#	12#	18#	24#	30#
1# 12 oz	3# 8 oz	5# 4 oz	7#	14#	21#	28#	35#
2#	4#	6#	8#	16#	24#	32#	40#
2# 4 oz	4# 8 oz	6# 12 oz	9#	18#	27#	36#	45#
2# 8 oz	5#	7# 8 oz	10#	20#	30#	40#	50#
2# 12 oz	5# 8 oz	8# 4 oz	11#	22#	33#	44#	55#
3#	6#	9#	12#	24#	36#	48#	60#

EP AND AP WEIGHTS

On recipe cards using fresh fruit and/or vegetable ingredients, you will notice the weight for these items followed by the term "E. P." or "A. P.", such as:

Cabbage..........45#, A. P.

or

Celery...........13#, E. P.

These terms indicate whether the required amount is weighed "As Purchased" (A. P.) or by the "Edible Portion" (E. P.). Almost all food items have a refuse percent (that part of the food item that is inedible). Refuse percents for fresh fruits and vegetables are listed in the Air Force recipe file (AFM 146-12) on card number A7 (1) and (2), in the General Information Section. These refuse percents have been calculated on 100 pounds for each food item and are listed on the cards in alphabetical order.

Edible Portion is defined as: The total portion of a food item which is edible minus the refuse percent.

As Purchased is defined as: The total weight of a food item including refuse (such as skin, seeds, core, peelings, pits, etc).

Using card A7 (1) and (2) from AFM 146-12 is the most simple way to determine EP and AP. There may be some occasion where you need to know how this is calculated. The following supplemental information is furnished for your own information:

(1) To calculate Edible Portion (E. P.) weight:

Suppose you wish to purchase a case of fresh cabbage. The weight of the cabbage minus the case is 45 pounds. You know from the information in AFM 146-12, card A7 (1) and (2) that cabbage has a refuse percent of 21. You need to determine the amount of E. P. 45 pounds of cabbage will yield. (NOTE: Be careful to not confuse refuse percent with yield percent in your calculations.)

(a) Multiply the A. P. weight by the percent refuse to get the pounds of waste:

45.00 x .21 = 9.45 lbs

(b) Subtract the pounds of waste from the original poundage:

45.00 lbs A. P. Cabbage
- 9.45 lbs refuse (21%)
35.55 E. P. weight

(2) To calculate As Purchased (A. P.) weight:

There are very few fresh foods used in a kitchen facility that have no refuse, therefore, it must be taken into consideration when ordering subsistence to compensate for the waste in order to attain enough E. P. weight to meet requirements of the recipe.

Suppose you need an E. P. of 32 lbs of brussel sprouts (which has a refuse percent of 26). You would not order 32 lbs of brussel sprouts. If you did, once the waste was eliminated, you would have less than the 32 lbs you needed. Instead you would calculate what the E. P. would be after waste was eliminated. To do this, use the formula below:

(a) Subtract the percent refuse from 100:

100
- 26
74% yield.

(b) Divide the percent of yeild into the amount of E.P. weight to equal A.P. weight. (Change the % to a decimal)

43.24 A.P. weight (in lbs.)
Example: .74./ 32.00.

(c) You would need 43 1/4 lbs of brussel sprouts, A. P. Round off to the next whole number.

(d) Order 44 lbs of brussel sprouts.

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MEASURING INGREDIENTS

An important point in writing recipes is the use of fractional measurements. Use simple measurements whenever possible. Measuring cups come in 1/2, 1/4 and 1/3 cup sizes, therefore, it is convenient to use these measurements rather than their equivalents in tablespoons or in difficult fractions (as 7/8 cups). The chart below gives standard measuring spoons and cups and equivalents:

Measuring Cups:

1 cup

1/4 cup

1/2 cup

3/4 cup - combine 1/2 cup and 1/4 cup

1/3 cup

Equivalents

3 t. = 1 T.

4 T = 1/4 C

5 T + 1 t = 1/3 C

8 T = 1/2 C

10 T + 2 t = 2/3 C

12 T = 3/4 C

16 T = 1 C

4 C = 1 qt

4 qt = 1 gal

(You may find it helpful to post a chart of equivalents in each food preparation area of the kitchen.)

Measuring Spoons:

1 T. (T = tablespoon)

1 t. (t = teaspoon)

1/2 t.

1/4 t.

for 3/4 t. combine 1/2 t. and 1/4 t.

for 1/8 t. use half of the 1/4 t.

Abbreviations Used in Recipes

f. d.	few drops
f. g.	few grains
t.	teaspoon
T.	tablespoon
c.	cup
pt.	pint
qt.	quart
gal.	gallon
oz.	ounce
lb.	pound
°F.	degrees Farenheit
A. P.	as purchased
E. P.	edible portion
(r)	slight rounded
(s)	scant

WEIGHTS AND MEASURES

It simplifies matters to use weights instead of measures when they are of special value in understanding the recipe. For example: Uncooked meat, poultry, fish, cheese and vegetables may be given by weight rather than volume.

Example: one 8 oz pkg freshly processed cheese (2 cups)

For canned products, it is best to give both measure and weight if the entire can is to be used. Otherwise, the measure will be sufficient.

Example: 7 3/4 oz jar applesauce (1 cup)

A well constructed recipe specifies the particular type of ingredient to be used when another would affect the quality of the finished product. If cake flour was to be used in the recipe, the recipe should read: "2 cups sifted cake flour." Distinctions should also be made between light, medium or dark brown sugars and between light and dark corn syrup.

Weighing

Ingredients should be weighed, when possible, since it is more accurate than measurement. Reliable, accurate scales are essential. A table model scale, 15 to 20 lb capacity, with 1/4 to 1/2 oz graduations, is suitable for weight ingredients for recipes up to 50 portions.

Quantities of most dry ingredients weighing more than 1 oz are given by weight, and all liquids are indicated by measure. If measures are used instead of weights, a table of fractional equivalents can be used for quick conversion. A table giving measure equivalents of weight (one to sixteen ounces) of commonly used foods will assist in quick conversion of small quantities given in recipes. (See the Ounce and Pound Charts given on pages 13 & 14 in this Study Guide.)

Measurement

Accurate measurement is important for consistent results with standardized recipes. The tools (measuring cups and spoons) must be accurate. Such tools include standard measuring spoons (in units of 1/4 t, 1/2 t, 1 t, and 1 T), standard measuring cups for both dry and liquid ingredients (dry ingredients use cups that can be leveled with a spatula; liquid ingredients use cups (usually glass) that can be read against an indicated measure line on the side of the cup), a graduated quart measure, a straight-edge knife or spatula for leveling, and a reliable scale, which saves time (especially when large quantities are involved) and assures accurate measurements of certain ingredients that are difficult to measure by volume because they pack differently under different circumstances, such as flour, brown sugar and shredded vegetables. When measuring, be sure to use standard measuring equipment and make measurement level. Use the largest appropriate measure to reduce the possibility of error and to save time.

Example: Use 1 gallon measure once rather than a 1 quart measure four times. (An exception is flour. Use a measure no larger than 1 quart for flour.)

SOME SPECIFIC POINTS IN MEASURING PROCEDURES

Fats and Oils

For solid fats in bulk containers, press the fat into measuring cups or spoons of specified size until they are full, then level with the straight edge of a spatula. For fats in bars or pound packages (such as butter), one fourth pound (1 bar) equals one-half cup. Measured fats and oils are measured by the cup or quart in a measuring cup used for liquids. Solid fats may also be measured by water displacement. To use this method, fill a glass measuring cup with a measured amount of water, but less water than the amount of fat to be measured. Then add fat to the water in the cup until the water is brought up to the amount of measured fat needed.

Example: You want to measure 1 1/2 cups of solid fat by water displacement. Fill a 2 cup glass measuring cup with 1/2 cup water. Add fat to the water until the water line is raised to the 2 cup level. You will then have 1 1/2 cup of fat and 1/2 cup of water, which would be poured off.

Flour and Meals

White flour should always be sifted once before measuring. Then gently fill measuring cup and level with spatula. Do not shake or tap the cup before or during leveling or you will pack the flour and will probably obtain a "heavier" product than desired. Whole-grain cereals or meals should be stirred lightly with a fork or spoon before filling and leveling the measuring cup.

Milk and Powdered Ingredients

Fluid milk is measured in a cup or quart measure for liquids. Dry milk should be stirred lightly, then filled into the measure with a spoon and leveled with a spatula, without shaking or tapping. For large quantities of dry milk and dry egg solids, weigh to obtain accurate measurements. Always stir powdered ingredients lightly to break up any lumps. Fractions of teaspoons or tablespoons should be measured with individual measuring spoons in the smaller sizes to obtain the desired quantity.

Syrups and Sugars

Pour syrup into a spoon or cup to the measure marker. Brown sugar should always be packed firmly into the cup before leveling. If it is lumpy it should be rolled and sifted before measuring. For white sugar, fill the measuring cup to overflowing and then level.

YIELD

Many factors affect the probable yield of a recipe, though the most important is probably portioning. Dippers are numbered according to the yield per quart and can help in controlling portioning. The yield on dippers and ladles is always based on level portions, so there could be variations if the food is liquid or very thick or if the server rounds or heaps the food into the dipper. If serving spoons are used, guidelines should be marked on the food in the pan or a portion weighed or measured to determine the correct quantity to serve.

For breads, gelatin salads, cakes and other desserts that are to be cut into servings, the yield is usually given as 48 rather than 50 portions because of the usual cutting methods. Bun pans 18 X 26 inches are often preferred for sheet cakes, rolls, jelly rolls and cookies. A 9 inch round two-layer cake is calculated to yield 14 to 16 servings, although an 8 inch pie will give only 6 servings.

CONSIDER THE FOLLOWING POINTS WHEN YOU WRITE YOUR RECIPES

1. Card Size. Nothing smaller than standard 5 X 8 inch or 8 1/2 X 11 inch cards should be considered. These provide sufficient space to hold essential information without over crowding.

2. Space Use. Decide on an orderly arrangement and follow the same general pattern for all your recipes. Once cooks are familiar with the arrangement, they will find it easy to read and follow the recipe.

3. Block Arrangement. It is helpful to group ingredients, then separate the groups with spaces or lines above and below each group. This makes it easier and faster to follow the recipe. Place directions directly across from the ingredients to simplify preparation.

4. Yield Columns. Do not include more than three columns for different yields on each recipe card. The more columns you have for varying yields, the easier it is for a cook to make an error in reading ingredient amounts. Too many columns also crowds and limits the space you need to give clear directions.

5. Consider Miscellaneous Directions. You might want to also include information on:

Equipment needed for the recipe

Pan sizes needed

Pre-preparation needed (such as chilling croquettes before frying, soaking meat for sauerbraten 3 days ahead)

Temperature

Approximate cooking time

Special portioning or merchandising instructions

FREQUENT QUESTIONS ABOUT ADJUSTING RECIPE YIELD

Q. What is the upper limit for increasing a recipe?

A. The "upper limit" is usually determined by the amount of large quantities of materials (food) that can be handled with ease. It is easier, for example, to make two batches of pudding, 500 portions each, than one single batch of 1000 portions. For some dishes - particularly those in which perfection depends on the incorporation of large amounts of air (such as souffles, angel food cake, omelets, whipped desserts) - it is impossible for a large batch of the recipe to incorporate the proportionate amount of air it needs. This will yield an inferior product.

Q. Should the proportion of flour or cornstarch in gravies, sauces, fillings and puddings be increased when you increase the recipe yield?

A. To keep product quality unchanged, you should keep ingredient proportions the same and allow sufficient time for thickening to take place. The proportion would probably not need to be increased, but you must consider that it takes longer to thicken a 30 gallon batch than a 3-gallon batch. More time and more stirring are needed to produce sauces, puddings, gravies and fillings of a desired consistency than are required for smaller batches of the same item. Also remember that large batches of these products may need special care to assure rapid cooling after they are cooked. Divide the finished product into smaller containers and cool quickly. A single, large deep bowl should not be used for storing of filling or puddings in the refrigerator because the cooling rate is very slow in large masses of hot material.

Q. Why is it necessary to cut down the proportion of nuts, fruit, eggs, spices, flavorings and leavening materials when you are increasing a recipe?

A. This is a mistaken recommendation, one for which there is no logical reason. Keep the proportions of all ingredients the same.

Q. Why does the delicate texture of a small quantity cake recipe never duplicate that of a larger quantity?

A. One problem may be that mixing time on the larger quantity was insufficient. This is especially true for a fairly rich cake. However, if you are working with a "lean" batter (such as muffins, a one-egg cake, pancakes and similar batters) it is very easy to overmix these batters and get a poor product. Adjust mixing time so that the batter resembles that produced in smaller batches. Baking soda and single-action baking powder release leavening gases in large quantity as soon as they are combined with the liquid ingredients. They may lose their leavening power if the batter is not baked immediately.

Q. Can you tell from the total weight of ingredients in a recipe how many portions it will yield?

A. Not exactly, but you can estimate on the basis of some facts, then adjust the recipe for the exact yield when you have made a "trial run" of the recipe.

Q. Can a small recipe be adapted to make a larger quantity without changing the quality of the finished product?

A. Yes, provided you develop the recipe in a systematic and careful way. Simple multiplication of household recipe cannot be depended upon to give consistent, satisfactory results. The relative proportions may be wrong, the mixing time too brief, and the yield disappointing. You would need a copy of the original recipe, including all ingredients used, the amount of each and complete directions. Check such information as the kind of flour, baking powder, shortening, brown sugar, molasses, etc used. Then proceed through the following steps. Remember that most recipes that appear in magazines are not truly standardized. Standardized quantity recipes for 50 or 100 portions are now available from many sources, including cook books and materials published and distributed from the experimental kitchens of commercial food companies.

1. Make the product in the original recipe, following ingredient amounts and procedures carefully. Make a note of any changes that you make or procedures that you followed which were not in the original recipe.

2. Evaluate the product from your first trial run. Determine if the product is exactly as the original. If so, double the recipe, being sure all your increased calculations are accurate.

3. Evaluate this quantity and determine if this product is the same as the original recipe. If so, double this quantity.

4. Proceed in this fashion (doubling each trial run) until you produce the product in the quantity you desire for your operation.

5. Anytime the finished product does not meet the standards of the original recipe, adjust the ingredient quantities as is necessary, but continue to work in that quantity rather than proceed to a larger quantity until the increased recipe meets the original in quality. Increasing a small quantity recipe to a large quantity yield without systematic, stepwise development is usually a mistake that leads to disappointment and waste. This requires a little more time, but is more likely to produce successful results. New ideas for recipes may come from many sources. Keep a file of recipe ideas that seem practical and desirable. All food services need new recipes and every operation also needs constantly to revise old recipes. New foods, improved ingredients, and new equipment are constantly appearing on the market, making it necessary to make changes. Cost requirements make it desirable to check recipes frequently for possible savings.

Q. Can or should the product be prepared in advance?

A. Sometimes. A recipe for a gelatin dessert or salad should indicate that the dish must be chilled for several hours before it can be served and that it can be prepared the day before serving. A recipe for croquettes should indicate that chilling for several hours or overnight is necessary before the mixture can be shaped into croquettes.

Q. What should be done first?

A. All preliminary procedures should be listed in sequence at the beginning of the recipe. Example: For an upside down cake the fruit topping would be prepared and placed in the pan before making the cake batter.

Q. Can certain procedures be simplified or eliminated to save time, equipment or dishwashing?

A. If egg whites are beaten before the yolks, the beater may be used without washing to beat the yolks.

Q. Should further information be included in the recipe?

A. Specify the type and size of pans to be used, the amount to be placed in each pan and whether or not the pans are to be greased. Recipes should be set up to yield the standard portions that will be required in the institution. Basic salad dressing recipes should use even quarts or gallons of oil.

Standard Capacities of Hot Table Serving Pans

Shallow Pan (1/2 size)
Inside measure 11 3/4 x 9 1/2 x 2 1/8"
 1/2" of top.......2 1/2 qt
 1/4 of top........3
 Capacity..........3 3/4

Deep Pan (1/2 size)
Inside measure 11 3/4 x 9 1/2 x 4 1/8"
 1" of top.......5 qt
 1/2" of top.....6
 Capacity........7

Full Size Pan
Inside measure 20 x 11 3/4 x 2 1/4"
 3/4" of top.....5 qt
 Capacity........8

Small Pot
Top inside diameter 7 1/4"
 1/2" to top.......4 qt
 Capacity..........3
 To collar.........3

Medium Pot
Top inside diameter 9"
 1/2" of top.......7 qt
 Capacity
 To collar.........5

Large Pot
Top inside diameter 11"
 1/2" of top......11 qt
 To collar........ 8

Q. Where should standardized recipes be filed?

A. At least THREE files of standardized recipes should be maintained in each food service department. A master file should be maintained in the dietitian or diet supervisor's office. This file can be used for menu planning and to assure that a recipe is never lost. A second file should be maintained in the storeroom to assure that all ingredients needed for a recipe are ordered and on hand before preparation begins. The third file would be maintained in the kitchen for use of the cooks. To reduce excessive soiling, you may want to enclose this set in plastic cases. Be sure cooks understand the filing system so recipes can be returned to their proper place in the file. Recipes are usually filed according to classes of foods. They may be filed in a standard recipe box, in visible cardex wall panels, or in a cardex drawer file. You may want to consider separate filing systems in different work areas of the kitchen - all desserts, breads, pies, cakes, rolls, etc in the bake shop, all vegetables and salads in the vegetable preparation area, all main dishes, soups, etc in the main food preparation area. Don't forget a separate file for therapeutic diet recipes for the diet cooks.

RECIPE ADJUSTMENTS FOR HIGH ALTITUDES

Time and temperature requirements vary with atmospheric pressure or altitude. It is necessary to increase baking temperature 2° to 3° for each 1,000 feet of increase in altitude above sea level and to shorten the baking time. Adjustments must be made on many ingredients, particularly sugar, shortening and baking powder. The ingredient most affected is the leavening agent. Cake recipes for use at normal altitudes will not produce satisfactory results at high altitudes. Why? Because the volume of gas obtained from steam, air, baking powder, or soda increases with an increase in altitude. Therefore, the proportion of leavening materials must be reduced when cakes are baked at high altitudes. Those ingredients which make a cake tender (sugar and fat) and those which give it strength (eggs and flour) are also affected by changes in altitude. For baking at altitudes of up to 5,000 ft, the fat and sugar should be reduced 10 percent. At altitudes up to 7,500 ft, reduce sugar and fat by 15 percent, and at 10,000 ft, reduce 30 percent. Be sure to grease baking pans more heavily and more thoroughly to prevent sticking to the sides and bottoms. For further assistance in adapting recipes for altitudes above sea level, consult the "Handbook of Food Preparation," by the American Home Economics Association. Experiment stations in mountainous regions have publications on this subject that are available free of charge.

The following table shows some adjustments made to recipes at high altitudes.

Adjustment	At 3,000 ft	At 5,000 ft	At 7,000 ft Altitude
Reduce baking powder:			
for each teaspoon, decrease	1/8 tsp.	1/8 to 1/4 tsp.	1/4 tsp.
Reduce sugar:			
for each cup, decrease	0 to 1 Tbsp.	0 to 2 Tbsp.	1 to 3 Tbsp.
Increase liquid:			
for each cup, add	1 to 2 Tbsp.	2 to 4 Tbsp.	3 to 4 Tbsp.

Here are a few suggestions that will guide you in the use of recipes. These are:

1. The recipe must be read through from beginning to end before it is started to be completely understood. This will give the user a thorough picture of what has to be done, and how it has to be done. Read the recipe again and again until each step and all terminology is clearly understood.

2. When the recipe is understood, necessary ingredients and equipment required should be checked to be sure all are on hand for its preparation.

3. If the recipe is to produce an accurate product, the ingredients must be measured accurately. Do not add or subtract from the ingredients of a tried and tested standardized recipe.

4. One of the main problems a supervisor has is that of preventing his cooks from cutting corners by purposely leaving out certain items or reducing the amount called for in the recipe. For example, if a stew dish calls for 8 pounds of sliced onions, a cook, to save time or because he doesn't "think the stew needs that much" will leave out 2, 3, or 4 pounds. Consequently, the total recipe yield is not what it is supposed to be.

5. Standardized recipes give complete directions and eliminate any guess work in cooking. Recipes are necessary for training new personnel. The menu will not have to be planned around the schedules of certain workers who alone know how to produce these specialties.

6. Recipes are filed according to classes of food. They may be placed in a standard recipe box or in cardex files. One set should be kept in a master file for the supervisory personnel to use for menu planning, a second set in the storeroom for estimating and forecasting subsistence, and a third set of recipes kept in an individual plastic envelope for use by the cooks. A simple book stand or triangular holder can be used to hold the recipe while cooking.

People engaged in public food service have come to appreciate that good food is requisite to the success of their business. On it depends the attraction and the satisfaction of a paying clientele. Managers of industry recognize it as a means of morale building among personnel. The enjoyment of food has been found to have a beneficial effect in the care of the sick.

Producing the correct quantity and consistent quality of food at a specified cost is important in any food service operation. Only by using standardized recipes can you guarantee these results. Good standardized recipes are designed not only to assure a good product but also to give food service management personnel an efficient, orderly procedure for preparation and to minimize time spent in preparation. Reducing the time spent in preparing standard menu items allows the cooks and supervisors time to explore new methods of preparation and service and to investigate new foods and equipment. As a diet therapy supervisor, you are responsible for the supervision of proper food production and service and consequently must be able to recognize the value of standardized recipes. One of the best ways to develop the ability to recognize the value of standardized recipes is to use them consistently.

TESTING REGULAR AND THERAPEUTIC RECIPES FOR STANDARDIZATION FOR MEDICAL FOOD SERVICE

Do cooks sometimes prepare gravies too thick?

Or too thin?

How are all those leftovers filling refrigerators going to be used?

Standardization can be a tool for better production control.

Does food cost go up when least expected?

Standardized recipes will help predict food costs and portion sizes.

Are menu items cancelled or preparation delayed - because an essential ingredient was not ordered?

Standardized recipes can simplify purchasing and indicate what foods need to be on hand.

With reassignments occurring constantly, are new cooks always being trained?

> Standardized recipes can simplify
> training and maintain quality and
> cost control even during training.
> They give new cooks confidence in
> their ability to perform their job.

The cook who thinks himself an artist feels he can "free lance" his cooking and produce masterpieces. Such persons who can do this consistently are rare. The old adage "a cook is only as good as the recipes he follows" is true. It is an established fact that most good cooks can prepare some highly acceptable and complicated meals from memory alone, but can they do it consistently? No, because it is impossible for any person to remember the exact kinds and quantities of all ingredients, the preparation sequence, and cooking procedures for the thousands of recipes used in Air Force food service facilities. Some highly skilled cooks can prepare some food items from memory and attain reasonably acceptable results. But they cannot be expected to produce from memory each and every food item and preparation procedure as they may appear on our menus. For institutional food service, including hospital food service, the important factors are uniform quality and quantity of food and speed of service. To insure uniform quality, a definite formula for each dish is required, and it must be followed exactly each and every time it is used.

For employees to produce food of superior quality, the supervisor must do three things:

1. He must furnish cooks with recipes for everything they make - from mashed potatoes to cordon bleu. There are many excellent recipes available for our use, and a file of worthwhile recipes is easily achieved by any of you.

2. He must insist - FIRMLY - that recipes be followed precisely. In this way, he trains his employees to realize each item in the recipe is there for a purpose, that each preparation method is required and that each proportion has been carefully worked out.

3. The supervisor must be completely loyal to the recipes himself and allow no deviation. He must visualize the standard for each dish and keep that standard high. He must not allow his personnel to be a little careless without his constant supervision, or to lay the blame for a substandard product on the ingredients used, the oven or the recipe. If a recipe is good to begin with, these factors are seldom at fault.

If you are involved in standardizing recipes in your medical food service department, the program will begin with the original recipe that your supervisor wants standardized for your particular operation. He will have several personnel in your department prepare the original recipe in the original quantity. Each person involved in the standardization process will follow these procedures:

1. Study Recipe before Modifying or Standardizing It: Before standardizing a recipe it should be stressed that it is just as important to study it as it would be for a contractor to study a blueprint before constructing a building.

2. Check Procedures for Correct Organization and Sequence of Work: Check the work and make sure that the steps are in order.

3. Simplify, Rearrange, Combine or Eliminate Unnecessary Procedures: The recipe should be made simple as possible and omit any unnecessary procedures and combine procedures whenever possible.

4. Write up Recipe for Testing: Write recipe using terms that are easy to understand. List ingredients in order used and have complete and simple preparation procedures as well as weight. measure and count.

5. Test Recipe in Smallest Quantities Possible and Judge Results for Standards: Test recipes in smallest quantities possible, make necessary changes, test again until satisfied with results.

6. Obtain Total Yield and Number of Portions: After testing recipe, list all factors carefully in writing and then obtain total yield and number of portions.

7. Repeat until Desired Yield and Quality are Obtained (Standardized): Continue to increase and retest the recipe until desired yield and quality are obtained.

QUESTIONS AND PROBLEMS

1. Define standardized recipe.

2. Explain the relationship of standardized recipes in:

   a. Menu planning

   b. Estimating and forecasting subsistence requirements

   c. Food production

   d. Portion control

3. Fill in the following information pertaining to the standard AF recipe (figure 3 last page)

a. Name of recipe ____________________

b. Index designation or file code ____________________

c. Total number of portions ____________________

d. Individual portion size ____________________

e. Type of meat used in the recipe ____________________

f. Amount of meat by weight used in the recipe ____________________

g. Amount of flour by weight used by measure in the recipe ____________

h. The first instruction under the procedural or method column

____

i. Temperature for griddle ____________________

j. Length of time to be baked ____________________

4. List four factors involved in testing recipes:

a. ____________________

b. ____________________

c. ____________________

d. ____________________

PROBLEM 1

Using the procedure for calculating E. P. weight given on page 15 of this SW calculate the E. P. weight of the following:

1. 63# carrots (refuse 18%) ____________________
2. 32# grapefruit (refuse 51%) ________________
3. 12# plums (refuse 6%) ______________________

Using the procedure for calculating A. P. weights outlined on page 16 of this SW calculate the A. P. weights needed to satisfy the E. P. weights listed below:

1. 29# lettuce (refuse 26%) ____________________
2. 42# onions (refuse 9%) _____________________
3. 31# peaches (refuse 24%) ____________________

Show your calculations below:

PROBLEM 2

Convert a recipe to adjust the recipe yield.

Given a standardized recipe and the number of portions to prepare, increase or decrease the amounts of the individual ingredients and total yield of the recipe. Twenty of the twenty four calculations must be correct.

Convert the recipe on the last page of this SW to yield 145 portions.

STANDARDS OF PERFORMANCE. Work must be neat and legible. Show all calculations. Mathematics to determine working factors must be shown. Follow the procedure outlined in your study guide. Enter the results (and all calculations) in the space provided below. A plus (+) or minus (-) is allowed for mathematical error.

CAUTION: Be careful in your procedures and especially in your calculations. Be sure to add correctly. Simple mistakes in addition or subtraction will be counted as an error. Remember to convert all decimals to ounces or pounds.

PROBLEM 3

Convert a recipe to use a specific amount of ingredients available.

Your supervisor wishes to use up 55 lbs of boneless beef which has accumulated in the refrigerator. He has asked you to convert recipe number L-15 (on the last page of this SW) for the number of portions it will yield.

Convert the recipe on the last page of this SW for that amount of boneless beef.

Procedure

STANDARDS OF PERFORMANCE: The same standards of performance apply for this problem as for Problem 1.

CAUTION: The same cautions apply for this problem as for Problem 1.

PROBLEM 4

Convert a recipe to produce a specific number of smaller portions.

Your supervisor has decided to reduce the portion size of recipe number L-15 from approximately 6 to 5 ounces.

Convert the recipe on the last page of this SW for that size of portion.

Procedure

STANDARDS OF PERFORMANCE: The same standards of performance apply for this problem as for Problem 1.

CAUTION: The same cautions apply as in Problems 1 and 2.

L. MEAT, FISH AND POULTRY No. 15

STEAK SMOTHERED WITH ONIONS

YIELD: 100 Portions	**EACH PORTION:** 1 Steak plus ½ Cup Onions
PAN SIZE: 18 by 24-inch Roasting Pan	**TEMPERATURE:** 350° F. Griddle; 325° F. Oven

INGREDIENTS	WEIGHTS	MEASURES		METHOD
Beef, boneless, Swiss steak	40 lb	100 steaks		1. Dredge steaks in seasoned flour; shake off excess.
Flour, wheat, hard	2 lb	1¾ qt		
Pepper, black		2 tbsp		
Salt	5 oz	½ cup		
Shortening, melted	2 lb	1 qt		2. Brown steaks on well greased griddle. 3. Overlap about 50 steaks in each pan.
Onions, dry, sliced	20 lb	5 gal		4. Cover steaks in each pan with 2½ gal onions and 1 qt water. Cover pans. 5. Bake for 1 to ½ hours or until tender.
Water, hot		2 qt		

NOTE: 1. 60 lb beef, carcass, chilled A.P. will yield 40 lb beef, boneless.
2. 2½ lb dehydrated onions may be used in Step 4. Reconstitute according to instructions on Recipe Card A-11. Drain before using.

FIGURE 3

STUDY GUIDE AND WORKBOOK

3ABR62231-2-III-2b

Technical Training

Diet Therapy Specialist

PATIENT TRAY SERVICE

October 1975

SCHOOL OF HEALTH CARE SCIENCES, USAF
Department of Biomedical Sciences
SHEPPARD AIR FORCE BASE, TEXAS 76311

Designed For ATC Course Use

DO NOT USE ON THE JOB

Department of Biomedical Sciences
School of Health Care Sciences, USAF
Sheppard Air Force Base, Texas 76311

SW 3ABR62231-2-III-2b
October 1975

PATIENT TRAY SERVICE

OBJECTIVES

This SW is designed to assist you while gaining practical experience with patient tray service at the Sheppard Hospital. During the hours you spend in the main kitchen of the Sheppard Hospital, you will accomplish the following objectives:

1. Assemble and operate equipment for patient tray service area in accordance with standard local procedures.

2. Preportion, wrap and place food in temporary storage, on the cafeteria and/or patient tray assembly line.

3. Select, portion and/or weigh food items for therapeutic and regular diets and between-meal nourishments and position on patients' trays in storage or on assembly line.

4. Determine nourishment items for specific diets.

5. Heat and chill dishes and serving equipment in accordance with standard local procedures.

6. Correctly set up patient trays in accordance with identification slips.

7. Check patient trays in for accuracy in accordance with tray identification slips.

8. Load patient trays on food carts in accordance with standard loading procedures.

9. Deliver patient food carts to wards in accordance with a standard local procedures.

10. Complete final tray assembly on wards in accordance with standard local procedures.

11. Pick up and return patient food carts to kitchen in accordance with standard local procedures.

12. Unload and clean patient food carts and equipment in accordance with standard local procedures.

13. Apply medical asepsis technique for isolation patients.

14. Promote good professional relations with medical personnel, patients, visitors and the public.

15. Perform duties with a high standard of professional conduct.

16. Observe security precautions involved in communications.

17. Observe security precautions involving the safeguarding of equipment, supplies and money within the Medical Food Service Department.

18. Assist ambulatory patients through the cafeteria line.

This supersedes SW 3ABE62231-2-III-3, May 1975.

INTRODUCTION

One of the main reasons for our job as diet therapy specialists is the feeding/caring of patients. If it were not for the special needs of persons who are sick or need help in the planning, serving and preparation of a therapeutic diet, we would not have a job.

The time and effort we spend in creating an atmosphere conductive to the enjoyment of food is well spent. In order for you to perform these tasks, there are certain procedures you must know. This SW is designed to help you acquire added knowledge.

READING ASSIGNMENT

1. AFM 168-4, Chapter 11, "Administration of Medical Activities."

2. AFM 160-8, Applied Clinical Nutrition.

INFORMATION

For many patients, mealtime is the high point of the day. An attractive tray of well prepared food, cheerfully presented, goes a long way toward the acceptance of the regular or therapeutic diet prescribed for the patient.

A correct, nutritious, attractive, well prepared and well served meal for the patient requires the teamwork of the medical, nursing and dietary services. The physician always prescribes the diet. The nurse orders the diet for the physician. The dietitian translates the diet order into a menu and supervises the food preparation and service to the patient.

While the quality and attractiveness of food is of major importance to the patient or customer, he is also interested in the manner in which it is served. The preliminary work of menu planning, food purchasing, storage and preparation of the food escapes his notice. But he is well aware of the end result - and the manner in which it is served. Therefore, due consideration must be given to this phase of food service.

In the home, food is usually cooked just before it is to be served and is put on the table as soon as cooking is completed. In institutions, the distance between "stove" and "table" is much greater, and the serving period is prolonged. Consequently, quality food, even though it is prepared according to the best methods, will lose much of its original appearance, flavor, food value and appeal if serving is delayed. One of the factors, then, in producing the ideal "homecooked" meal in hospitals is a minimum time lapse between preparation and service. This minimum time lapse can be achieved by careful planning, efficient work methods and adequate facilities.

TYPES OF TRAY SERVICE

The methods of serving trays to patients and distributing these trays to hospital wards can vary in different hospitals. Most Air Force hospitals use a "centralized tray service" which means that trays are completely prepared and assembled in the main kitchen of the hospital, then transported by truck, dumbwaiter or conveyer to the patient wards. They are returned to the kitchen in the same manner. The trays are filled in an assembly-line fashion, and are checked by a supervisor or dietitian before distribution. In smaller hospitals, the trays are moved along the assembly line by hand, in much the same manner that you proceed through a cafeteria line. Larger hospitals use a motorized conveyor belt to move trays through the system.

Some civilian hopsitals use a "decentralized tray service" by which food is sent to the hospital wards in bulk. On the wards, food portions are served onto individual trays for delivery to the patient. Some food, such as coffee, toast, and eggs are actually prepared on the wards.

Of the two systems, the centralized system is the most efficient in terms of time and labor. Accurate control of therapeutic diets, as well as the quality and quantity of food served, is better managed in the centralized system. All food service activities are integrated under the immediate supervision of the medical food service officer or dietitian.

PATIENT TRAY SERVICE PROCEDURES

1. Assemble and operate equipment for patient tray service area: Once food for the regular and therapeutic diets is prepared, it must be assembled for service to patients on hospital wards. Equipment used in a centralized tray service system would include the items listed in Figure 1, page 4.

The prepared food must be placed into the appropriate serving pans, and served with the proper serving utensils. The placement of food on the line will depend largely upon how the line is arranged. The items should be set up in the order in which they will be loaded onto food carts. The ideal plan is to have as many hot foods at the end of the serving line as possible. It can then be loaded onto the food carts last, then delivered directly to the wards. The hot line should be checked well in advance of its use to be sure it is working properly.

In most of our Medical Food Service facilities conveyer lines are used. The food is set up on each side of the conveyer line, starting with trays, condiments, silverware, etc. The trays are then set on the conveyer line and are forwarded to the direction of the loading area of the food cart. Food service personnel will put on the items ordered and must check for missing items.

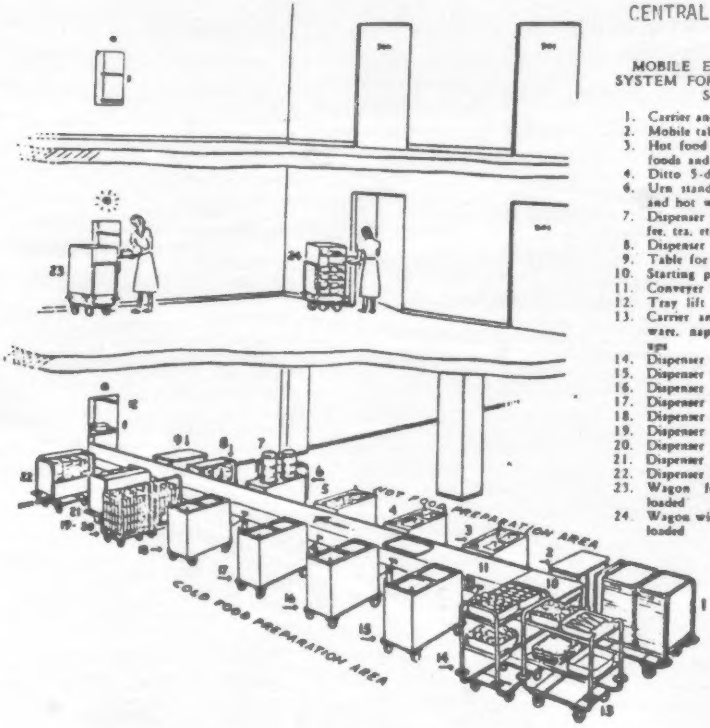
Most of the larger USAF hospitals have conveyer lines similar to that listed in Figure 1, page 4. These are simple to operate . Turning them on involves simply turning on a switch, much as you would a light in a room. Both the heated and chilled units, plus the food carts, however, most be plugged in and turned on considerably in advance of use to allow them ample time to warm up or chill. This can be an hour or more in advance of use. Always be sure switches on individual units are turned on as well as being plugged in, so that equipment will heat or chill. Coffee urns must be filled and the beverage brewed so that it is ready to serve by the time food carts leave the medical food service department.

2. Preportion, wrap and place food in temporary storage on the cafeteria and/or patient tray assembly line: The food carts tend to dry out food that is not adequately protected from the heating or chilling units. For food to look and taste its best when it is served to the patient, it is necessary to protect some types of food. Bread should always be wrapped in a clear plastic wrap if it is not purchased in individually wrapped slices. Cake may be wrapped with clear plastic, as may some type of salads. It is necessary to accomplish this in advance of the operation of the tray line so that time is not lost during actual tray assembly. Other menu items may need individual wrapping, but these will vary depending on the menu served.

3. Select, portion and/or weigh food items for therapeutic and regular diets and between-meal nourishments and position on patients' trays in storage or on the assembly line: Any person responsible for patient care should consider each patient as an individual and should recognize his physical, psychological, cultural and emotional needs. Thinking only in terms of treating a specific problem is inexcusable for the physician; for the diet therapy specialist, merely serving a tray is also inexcusable. We MUST consider the other individual needs of the patient; if we fail to do so we deny each patient the right to be an individual.

Patients on a regular diet are allowed to choose the food items they want from a selective menu offered at all USAF Hospitals. Some hospitals also offer a selective menu for patients on a therapeutic diet. Dietary personnel still have the responsibility to "tailor" food likes and dislikes for individual patients to meet the requirements of their prescribed diet.

The following diagram shows a variety of equipment as may be used in a larger USAF Medical Food Service.



CENTRALIZED SERVICE

MOBILE EQUIPMENT AND SYSTEM FOR HOSPITAL FOOD SERVICE

1. Carrier and dispenser for trays
2. Mobile table for food requisitions
3. Hot food unit, dispenser for hot foods and heated dishes
4. Ditto 5-ditto
6. Urn stand with urns for coffee and hot water
7. Dispenser for heated pots for coffee, tea, etc.
8. Dispenser for cups and saucers
9. Table for supervisor
10. Starting platform for trays
11. Conveyer belt for trays
12. Tray lift
13. Carrier and dispenser for silverware, napkins, tray covers, set-ups
14. Dispenser for bread and butter
15. Dispenser for salads
16. Dispenser for pies, or desserts
17. Dispenser for milk
18. Dispenser for ice cream
19. Dispenser for glasses
20. Dispenser for glasses
21. Dispenser for heated food covers
22. Dispenser for cooled food covers
23. Wagon for food trays being loaded
24. Wagon with food trays being unloaded

Figure 1

When working on the patient tray assembly line, you will be responsible for selecting the correct food to fit the diet, as well as the correct size portion of the food(s). These are sometimes preportioned so as to speed the tray assembly process. Some foods used on diabetic diets must be weighed to assure that the correct amount is served. Between meal nourishments also follow these same principles. Such food items would be positioned on the tray assembly line so as to make service as quick, smooth and uninterrupted as possible once tray assembly begins.

4. Determine nourishment items for specific diets: Nourishments are any type of food given between regularly scheduled meals or feedings. Another responsibility of diet therapy personnel in the patient tray area is to determine and prepare nourishment and deliver them to the wards.

Centralized nourishment service is the preferred method for distributing foods and fluids required by patients at other than normal meal hours. Nourishments which appear in the meal patterns in AFM 160-8 will be furnished as an integral part of the prescribed therapeutic diet regimen. When they are a part of any diet, there is no need for nursing personnel to order nourishments separately; it is the responsibility of medical food service personnel to prepare and serve these nourishments at the time they are needed. All other nourishments which are needed, but which are not an integral part of the diet, must be prescribed by the physician or dentist on an individual basis. All nourishments should be labeled with patient's name, ward, time, and bed number.

Each ward pantry should be inventoried once daily by diet therapy personnel to aid in keeping the amount of nourishments to a minimum. At this time all milk should be checked and any between meal feedings sent the previous day should be discarded. We should work closely with the ward charge nurses because they must see that nourishments are used properly and for intended purposes.

5. Heat and chill dishes and serving equipment: Plates used for serving hot foods should be preheated before food is served on them. Chilled foods should be served on dishes that have been prechilled. Plates are usually warmed as they are stored in electric lowerators. Coffee cups can be warmed by placing them in a heated drawer of the food cart as it is being preheated. Salad or dessert dishes can be chilled in a refrigerator or in the chilled drawers of the food carts.

6. Set up patient trays (for regular and therapeutic diets) in accordance with identification slips: Along with the food prepared to fit the menu for each meal, the patient assembly line is set up to have patient trays, sliverware, glasses, cups, condiments, beverages, etc handy for loading. The assembly line always begins with the tray, for it must hold all other food, utensils and china that are to be delivered to the patient.

The service of the daily meals and between-meal nourishments are highlights of the day and are looked forward to by any hospitalized patient. Therefore, the tray arrangement reflects thoughtfulness and consideration of the patients' conditions.

The tray is constructed of some lightweight material such as aluminum or plastic. The tray cover and napkin are disposable paper and are always clean and fresh for each meal.

The tray should be large enough to hold all of the necessary dishes and food for the meal. The meal in USAF hospitals is never served in courses. This means that the dinner tray must hold the soup or fruit, (if served), meat and vegetables, salad, bread, dessert, beverage, condiments, cream and sugar.

The china, glassware, and silverware should be placed in a convenient location on the tray and within reach of the patient. You should try to imagine how you would react to a poorly arranged tray or how you would eat if you were required to remain flat on your back for a meal. The tray that is arranged haphazardly indicates poor food service.

There are certain general rules for tray settings and service that you should learn and practice:

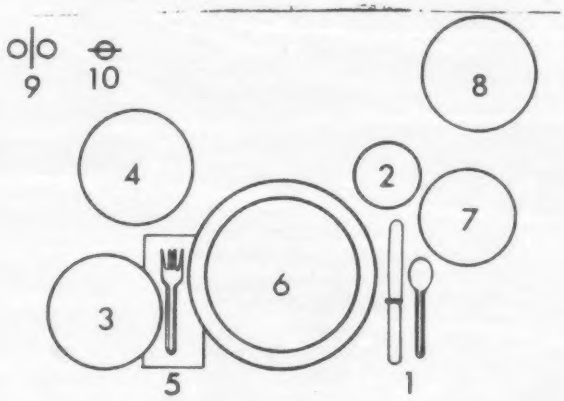


Figure 2

- In the event you set the silver on each tray, the spoon and knife are placed at the right of the plate and fork on the left. The sharp edge of the knife is always turned towards the plate. Many AF hospitals use prewrapped silverware. In this case, the roll of silverware is placed to the right of the plate.
- Water glasses stand at the tip of the knife blade nearest the plate.
- The bread and butter plate stand to the left of the fork.
- The salad is placed at the tip of the fork's tine.
- The napkin is placed under the fork.
- The dinner plate is placed so that the entree portion is closest to the patient.
- The dessert is placed at the tip of the spoon
- The soup bowl rest directly in front of the dessert.
- Sugar, salt, and pepper are placed in the upper left hand corner.
- The diet card is positioned to the immediate right of the sugar, salt and pepper.

7. Check patient trays for accuracy in accordance with tray identification slips. As patient trays are prepared in the medical food service department for service to nonambulatory patients on the hospital wards, there are several items that must be checked so that the food trays are nutritionally, medically and esthetically correct. Some of these are:

a. Check that a tray identification slip has been prepared for every patient who is to receive a meal tray.

b. Check that the tray identification slip is accurate so that the patient receives the correct diet.

c. As trays are loaded, check the tray identification slips against the modified diet menu so that the correct food items are used to meet the requirements of the diet.

d. Position the food items and utensils on the plates and tray in an attractive and logical, planned manner.

The appearance of the patient's tray is of the utmost importance. If the total appearance of the tray is unattractive, the patient will not be as likely to accept his diet. Quality standards for tray service are the primary responsibility of the medical food service department, but we require the cooperation of nursing personnel to assist with this responsibility. Some of the standards that requires our immediate attention are:

a. Variations in color, flavor and texture for appeal to the senses.

b. The size of the tray must be suitable for the quantity of foods served (liquid meals should be served on a smaller tray than a full course regular meal).

c. If tray covers are used, they must be sized to fit the tray properly and must be immaculately clean.

d. Everything on the tray - glasses, silverware, china - must be sparkling clean.

e. Attractive china should be used. (China that is chipped or cracked must NEVER be used.)

f. The tray should be arranged for the greatest reaching convenience to the patient. Standard tray diagrams, designed for this convenience, should be followed in tray set-up procedures.

g. All silverware and necessary accessories should be included.

h. Food portions should be attractively served. Portions that are too large are unattractive. Individually packaged sugar, salt, pepper, cream, jelly, mustard, mayonnaise, honey, salad dressing, milk, etc. should be used whenever possible.

i. Spilled liquids or sloppy serving of food is INEXCUSABLE. When mistakes happen, food should always be transferred to another clean tray.

j. Garnish food to make it more appealing.

k. Serve meals on time.

l. Serve foods at the proper temperature. Hot foods should be served on hot plates, protected with a cover. Cold foods should be served on chilled dishes.

m. Serve trays promptly to the patient so that food is at its best.

n. Before trays leave the medical food service department, they should be checked for accuracy in meeting the requirements of the diet order and the patient's individual food preferences.

o. Identification of each tray should be designed for accuracy in delivering the correct tray to the patient.

8. Load patient trays on food carts: As each tray is completed, it is loaded directly onto the food cart, which is positioned at the end of the conveyor line, next to the hot food. Care must be taken that the door of the food cart is completely closed immediately after each tray is loaded. It takes very little time for all the heated air to escape. This will result in the food being cold when it reaches the patient.

Someone very proficient in therapeutic diets is needed at the end of the assembly line to check each tray for accuracy. As soon as the last tray is loaded, the food cart is taken directly to the ward. The following steps should be followed to assure adequate and prompt delivery:

a. Unplug the cart and store cord on hook attached to cart.

b. Deliver food cart to ward without delay.

c. Upon arrival at the ward plug in cart immediately to insure proper food temperature.

d. Assemble trays as quickly and accurately as possible to reduce deterioration of food to a minimum.

FOOD CARTS

As Diet Therapy Specialists you will be using various types of food carts. The following diagrams and information will help you to become more familiar with the various types that are usually used in Air Force hospitals.

a. Pellets: The use of the pellet tray assembly is another method of keeping food hot or cold. When the pellet is used, the patient's tray is completely assembled in the central kitchen, where it can be checked by a diet therapy specialist, supervisor and/or dietitian; to be sure that it conforms to the patient's prescribed diet. The pellet can keep foods hot or cold for up to 1 hour. The pellet is heated in a heater for hot foods or chilled in a refrigerator or freezer for cold foods. The pellet is then placed in a special tray, and the dish of food is placed on top of the pellet. A cover is then placed over the dish until it is delivered to the patient. Other accessories that may be used on the tray are insulated bowls and insulated beverage servers. There is also a specially designed tray cart that holds either 24 or 30 trays. There is a warming cart that keeps the insulated bowls warm. The tray, its cover, dishes, and accessory items may be washed in the dishwasher.

b. Individual Insulated Packs: The individual insulated pack is another method of keeping food hot up to 1 hour after packing. The container shown in Figure 3 is an airtight insulated metal container. The food is placed in an inner removable three-compartment pyrex dish. The inner dish is preheated, generally in an infrared oven especially designed for heating the pyrex dishes to 400° to 500° F. before the food is placed in it. Food will keep hot much longer if the container is stored at 130° F. prior to use. One easy motion locks or unlocks the container. Other accessory equipment that may be used with the individual insulated packs include an infrared dish heater, a container storage cart, and insulated beverage containers.

9. Deliver patient food carts to wards: Immediately after each food cart is loaded, it is delivered directly to the hospital ward by a diet therapy specialist. (While you are a student, you will always have someone experienced in this procedure with you, but when you get to your first duty assignment you will be expected to do this job alone. It is to your advantage to be aware that this will be one of your earliest duties, so learn as much as you can about the correct procedures in doing this task.)

Most Air Force hospitals deliver patient trays to the wards on heated food carts. Two of the most frequently used types of carts are shown in Figures 4 and 5.

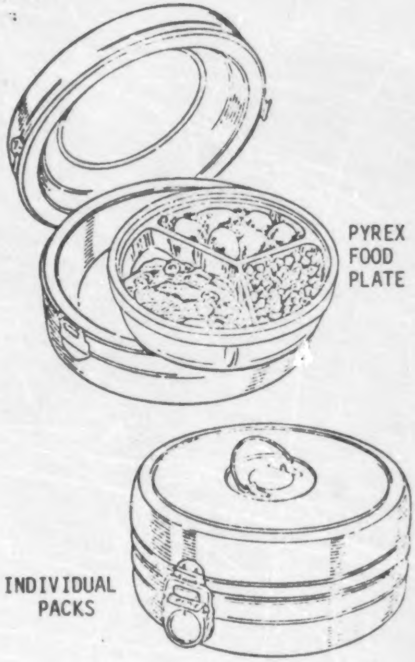


Figure 3 Individual insulated pack.

Figure 4 illustrates the hot tray-cold tray systems. In this example, the tray to the left holds all cold food items, such as fruit juice, salad, dessert, milk, condiments, butter, bread, etc. The tray to the right holds all hot food items such as soup, meat, potatoes, vegetables, beverage cup, etc. In the kitchen, all food items are loaded on the tray to the left, then all hot food items are loaded on the tray to the right. The top left tray matches the top right tray and is so combined on the ward before it is delivered to the patient.

Figure 5 shows a one-tray system. The tray is divided down the center by a rubber gasket; all foods to the right of the gasket are cold, all foods to the left of the gasket are hot. It is not necessary to match a hot and a cold tray on the wards - all food items belonging to one patient are already combined on one tray. The rubber gasket down the center of the tray prevents the transference of hot and cold air across the tray.

The food carts are always delivered to the hospital wards by diet therapy personnel. In multi-storied hospitals, the elevator is used to transport the carts to the wards. These carts weigh several hundred pounds each, but are engineered so that they may be moved by one person.

There must be coordination between diet therapy personnel and nursing personnel to be sure that patients will be ready when their trays arrive. AFM 168-4 designates the hours of meal service to hospitalized patients. These are:

Breakfast	0700
Lunch	1130
Supper	1700

It is important to note that meals should never be served earlier than these hours, but they may be served later if warranted.

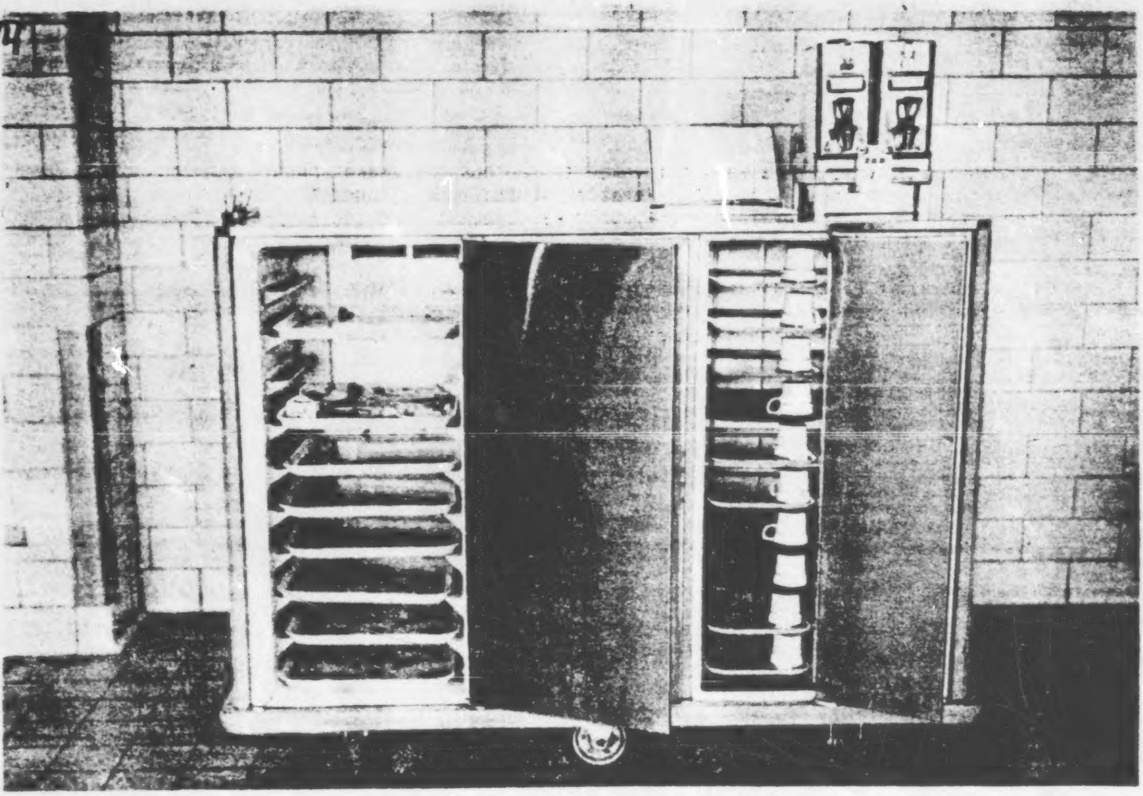


Figure 4

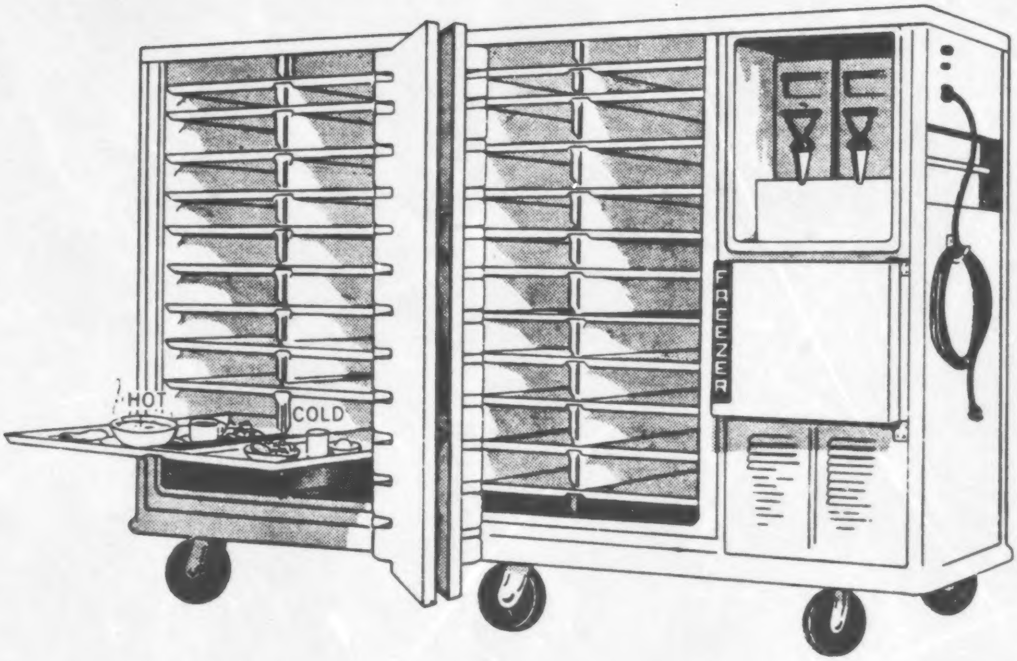

HOT
COLD
FREEZER

Figure 5

PREPARING THE PATIENT

It is the responsibility of nursing service personnel to prepare the patients so that they are ready for their trays at mealtime. This includes, but is not limited to: washing the patient's hands before mealtime if the patient is not ambulatory; positioning the patient so that he is comfortable and able to feed himself; convenient location of the bed cart so that the tray may be placed before the patient without delay; delivery of patients' trays from the food cart to bedside. Personnel delivering trays should cheerfully present trays without delay.

10. Complete final patient tray assembly on wards: Diet therapy specialists do not carry patients' trays from the food cart to the patient's bedside except in emergency situations. This is the responsibility of ward personnel. Responsibilities of diet therapy personnel include the rapid final assembly of trays on the ward, such as combining the heated and chilled dishes on one tray and adding a hot beverage to the tray. The first trays loaded on the cart should be the first trays unloaded on the wards. Always be absolutely sure that the tray identification for the cold tray matches the identification of the hot tray. The food must be placed on the tray neatly. Any spills must be wiped up.

From this point, ward personnel deliver trays to the patient's bedside. After the last tray is delivered, it is usually the responsibility of diet therapy personnel to visit each ward patient to determine how he can serve him or her better.

11. Pick up and return patient food carts to kitchen: At the end of the meal, ward personnel collect trays from each bedside, return them to the food cart, and diet therapy personnel return the cart to the main kitchen for disassembly and cleaning.

12. Unload and clean patient food carts and equipment: After food carts are returned to the kitchen, the soiled dishes must be unloaded and the interior of the carts cleaned thoroughly. Dishes are usually unloaded near the dishwashing machine to reduce transportation of the soiled items.

Cleaning of the carts must be done immediately following each meal. Even the smallest particles of food must be removed; otherwise the carts become a haven for rodents and insects. After cleaning, the carts are moved to the area of the kitchen where they are stored. They are often plugged into wall sockets immediately so that they may begin heating and cooling in preparation for the next meal to be served.

When you begin to disassemble the patient tray assembly line you must first consider what to do with leftover foods. Usually the extra food is either used on the main serving line or transformed into another menu item to be used later during the day. Leftover food will be kept to a minimum. It should be used within a 24 hour period. Such food requires immediate refrigeration and adequate reheating before being served again. After leftovers have been reheated and served once, they should not be served again.

All equipment used on the patient assembly line must be thoroughly cleaned following each meal. If the tray assembly line is mobile, it is sometimes moved to a cleaning area. If the equipment is stationary, it is cleaned in position. Mobile equipment must be returned to its proper location on the assembly line for use the following meal. All line inserts for both types of lines are removed and cleaned either in the pot-and-pan cleaning area or through the dish machine. All utensils are cleaned thoroughly. The entire assembly line is washed and cleaned, the floors swept and mopped.

13. Apply medical asepsis technique for isolation patients: For patients in isolation, special precautions are used to protect the patient and the rest of the hospital staff. Some of these precautions were covered early in the course when you learned safety techniques. For a quick review:

Patients in Isolation: These patients have an infection or communicable disease that must be contained; if not, it could be spread to other patients or the hospital staff. All personnel who enter the patient's room must take special precautions to prevent the spread of the infection. Disposable tableware is used for serving ALL foods and beverages, including disposable dishes, glasses, cups, silverware, trays, etc. These are sacked and burned after use by the patient. They are never returned to the kitchen.

Patients in Reverse Isolation: These patients have a very low tolerance toward infection and can easily be infected by others. They do not have an infection that can spread to others, but are in danger of receiving an infection from hospital staff personnel or from equipment. Reverse isolation techniques are applied in feeding these personnel. Review you Study Guide on Medical Food Service Safety for detailed procedures.

14. Promote good professional relations with medical personnel, patients, visitors and the public. As you deliver food carts to the medical wards, you will have personal contact with many other personnel from the hospital, such as doctors, nurses, ward technicians, laboratory specialists, administrators. You will also be in contact with the patients themselves and sometimes with members of their family. You will be meeting visitors to the hospitals and sometimes public dignitaries. Remember that you are expected to conduct yourself as a respected member of the health care team. How you act, behave and meet others reflects on your entire department. Certainly you want other members in the food service department to act in such a way that it is a credit to YOU. Remember to act in such a way that your behavior is, in turn, a credit to others.

We have already discussed specifics of Professional and Patient Relationships in Block II. Review your study guide so that you will remember the important points discussed.

15. Perform duties with a high standard of professional conduct. Your performance within the medical food service department, no matter which section you are assigned, requires that you perform your job with the highest standard of professional conduct and ethics. It is not enough to simply get a job done by any fashion.....Remember the old saying "Any job worth doing is worth doing well." This applies in food service too! Never lower your standards or those of your department by doing a job half-way. Even if it takes extra time and extra effort, don't give any job less than your best.

16. Observe security precautions involved in communications. Each day, you will be in contact with many persons...hospital patients on the wards, hospital duty personnel throughout the hospital, civilians, etc. When you pick up rations on base, you come in contact with other civilians and military personnel. You will use the telephone many times a day. Remember that scraps of information which, in themselves, have little or no value, may be pieced together and eventually damage the security of our country.

We have already discussed specifics of Security in Block I. Review your study guide so that you will remember the important points discussed.

17. Observe security precautions involving the safeguarding of equipment, supplies, and money within the Medical Food Service Department. Safeguarding equipment, food items, administrative supplies and money collected is the responsibility of each and every person within the medical food service department. It is NOT only the responsibility of the NCOIC. If you are negligent or misuse any of these, you may be held financially responsible for them. This means that if you break a piece of equipment through your own negligence, YOU may have to reimburse the govennment for it,....not your OIC or NCOIC. If you are pulling mess-check duty and your money does not balance when you tally up the Cash Meal Logs, YOU, not your OIC or NCOIC, will have to make up the difference out of you own pocket.

We have already discussed specifics on the safeguarding of equipment, supplies and money in Block I. Review your study guides on Materiel, Forms, and Records so that you will remember the important points discussed.

18. Assist ambulatory patients through the cafeteria line: Patients who are ambulatory enjoy eating their meals with others. In Air Force hospitals, ambulatory patients - whether they are on a regular or therapeutic diet - are allowed to come to the dining hall for their meals. Generally, if the patient is ambulatory but needs assistance with his tray in the cafeteria line, he is not allowed to receive meals in the dining hall because manpower is not usually available to assist a large number of patients in such a manner. However, from time to time a long-term patient (such as one recovering from a broken arm or leg) is allowed to eat in the dining hall and will require the assistance of a diet therapy specialist. This usually entails only carrying the patient's tray from the cafeteria line to a table. Occasionally the ambulatory patient may need help in selecting the proper foods to fit a prescribed therapeutic diet. It is also the responsibility of Medical Food Service personnel to assist bed patients in selecting food items from selective menus which are available to all patients.

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QUESTIONS

1. Explain what we mean by centralized tray service.

2. Explain what we mean by decentralized tray service.

3. At which end of the patient assembly line should hot foods be located? Why?

4. Food carts must be plugged in at least ________________ in advance of use so they may heat and chill thoroughly.

5. Give two examples of foods that must be prewrapped to prevent drying out in the food carts: ________________________ and ________________________

6. Why are some foods preportioned on the patient assembly line?

7. Define nourishments:

8. Explain how nourishments which are not an integral part of a diet are obtained for the patient.

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9. How often should ward pantries be inventoried? ______________________________

Who does the inventory? ____

10. How may plates and cups be warmed in advance for use on patient assembly lines?

11. Who is responsible for delivering food carts from the kitchen to the hospital wards?

12. Who is responsible for final assembly of trays on the ward?

13. Who is responsible for delivery of the tray to the patient's bedside?

14. Who is responsible for returning the food cart to the kitchen?

15. What is the earliest time breakfast may be served to patients in an Air Force hospital? ________________ Lunch? ___________________ Supper? __________

16. Why is it important that food carts be cleaned thoroughly at the end of each meal?